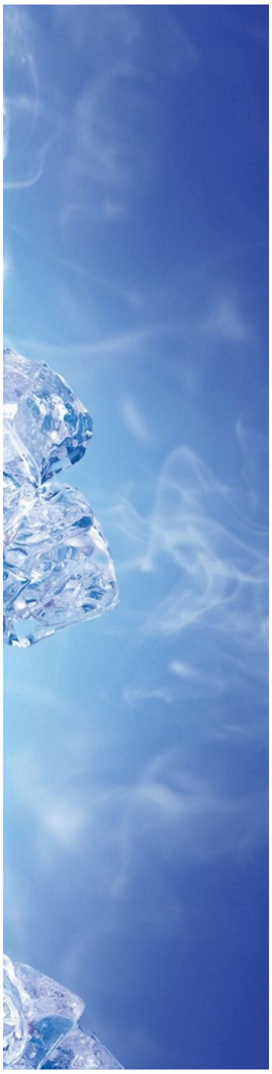
# COLD STORAGE OBSERVATORY



## Quarterly Report

March 2022

ÍNDICE

# RESUMEN EJECUTIVO

executive Summary

The Cold Observatory, created by an agreement between ALDEFE and the University of Zaragoza, presents its third quarterly report on cold storage and refrigeration operations.

The report opens with a presentation of the main **indicators** of the sector in Spain, based on the data collected by ALDEFE among the associated companies. The data for the fourth quarter of 2021 show an average occupancy of frozen products warehouses of 82.25%, a figure higher than that of the third quarter (80.99%).. The estimated turnover of the total sector was 57,609,381 euros, 2.7% higher than the previous quarter. It is accompanied by the analysis of international indicators of the cold sector and the main macroeconomic indicators of Spain.

The **Market** section analyzes the general evolution of the Spanish market, characterized by the acceleration of changes in form and substance of consumption habits. Next, we delve into the analysis of the most outstanding facts and trends in the main categories of frozen products: meats, processed products, fruits and vegetables, fish, dairy and bread and pastries.

The third section, **Panorama**, collects and analyzes some of the most outstanding milestones in the macro environment where ALDEFE associates operate, taking into account trends and with a future orientation.

The closing of the report is dedicated to a **specific report of Competitive Intelligence,** which deals in greater depth with a matter of substance and interest in the cold sector and with an orientation that allows to identify risks and opportunities for ALDEFE and its associates, In this quarter an analysis of the cost of electricity in Spain and in Europe in 2021 and an estimate is carried out of the factors that may influence the evolution of the price of electricity. It is accompanied by an assessment of its effects on Spanish refrigeration farms and the need to have tax exemption measures, like other industrial and agricultural sectors, to face the excessive rise in electricity.


## indicators

**Presentation of the main indicators of cold storage and refrigeration farms in Spain during the fourth quarter of 2021. An average occupancy of frozen products warehouses of 82.25% stands out, a figure higher than that of the third quarter (80.99%). The estimated turnover of the total sector is 57,609,381 euros, 2.70% higher than the previous quarter. Regional differences in the size and average turnover of companies remain.**

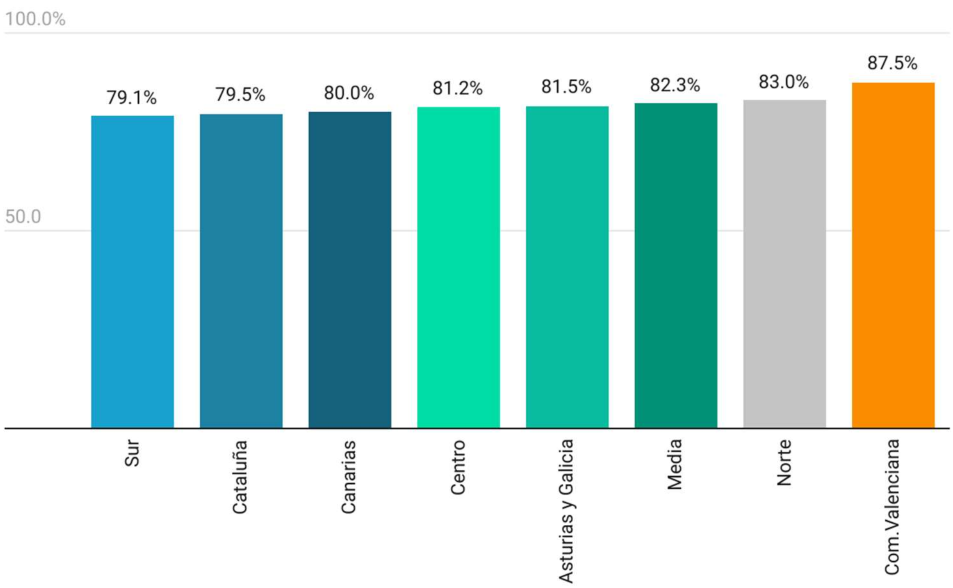
**It is accompanied by the analysis of two international indicators of the cold sector: the cold storage cost index of France and the logistics indicator of Germany. The GCCA cold chain index is not included because it has not been updated.**

**It closes with the analysis of the main macroeconomic indicators of Spain: the consumer price index, GDP at market prices, the unemployment rate and the harmonized business confidence index. Inflation continues, reaching worrying values and risks of stagnation appear.**

# Indicadores de ALDEFE

According to the information collected by ALDEFE among its associates, the **average occupancy** of frozen products warehouses in Spain during the fourth quarter of 2021 was **82.25%.**

By **region**, the Valencian Community leads the ranking with 87.53%, while the South zone is the one with the lowest occupancy values with 79.05%. Asturias and Galicia are below the average, with 81.49%, the Central area with 81.24%, the Canary Islands, with 80%, Catalonia, with 79.53% and the South zone with 79.05%; and above the average, in addition to the aforementioned Valencian Community, the North zone with 82.97%.97%

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| With. Valencian | North | **MEDIA** | Asturias and Galicia | Center | Canary Islands | Catalonia | On |
|---|---|---|---|---|---|---|---|
| 87,53% | 82,97% | **82,25%** | 81,49% | 81,24% | 80,00% | 79,53% | 79,05% |

***Figure 1:*** *Occupancy rate of frozen products warehouses in Spain: 2021, 4T.*

***Source****: ALDEFE.*

***The average occupancy of frozen products warehouses during the fourth quarter of 2021 was 82.25 %. The Valencian Community stands out at the extremes with 87.53 % and South with 79.05 %.***

Extrapolating to **the total** of the information collected sector allows to estimate its **turnover** during the fourth quarter of 2021 at **57,609,381 euros.** This figure is 2.7 0% higher than that of the third quarter of the year, which was 56,091,590 euros.

As for the average values of **the activity and turnover indicators** for the fourth quarter of 2021 that are obtained from the information collected among the participants in the survey are the following: average number of employees per 10,000 m3: 3.49; tons handled per m3: 0.28; and average turnover per m3: 8.23 eur.

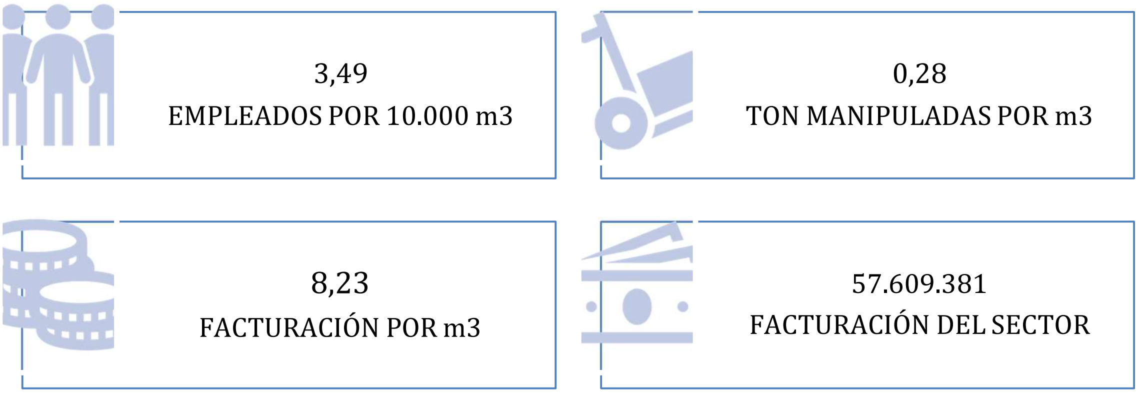



***Figure 2:*** *Indicators of frozen product warehouses in Spain: 2021, 4T.*

***Source:*** *ALDEFE.*

All the indicators analyzed improve compared to the third quarter:

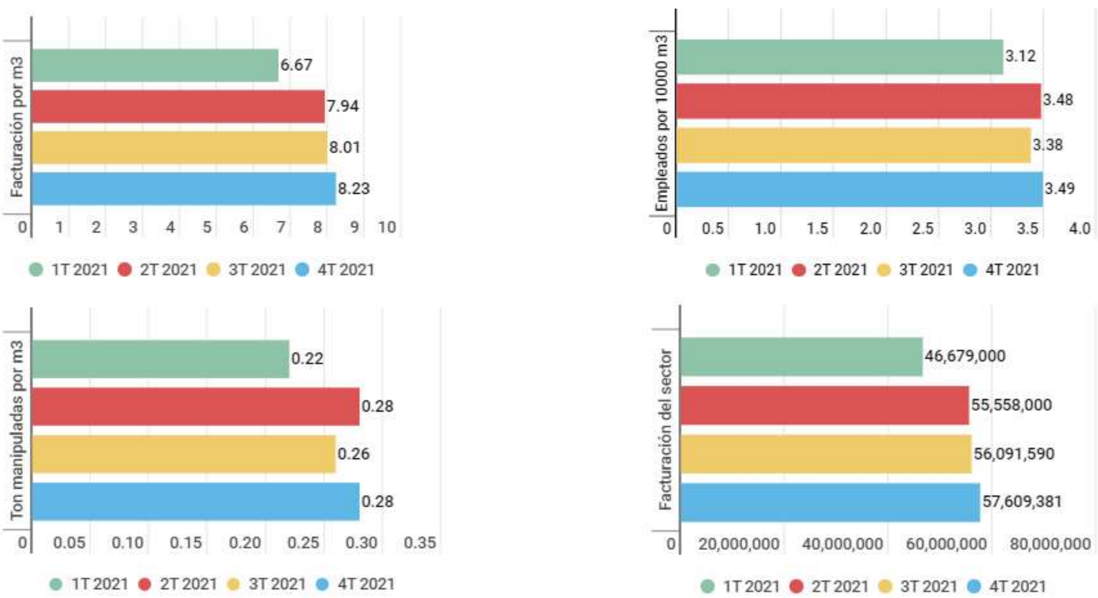



***Figure 3:*** *Evolution of ALDEFE indicators 1Q-4 Q2021*

***Source:*** *ALDEFE.*

Finally, the **breakdown by categories of the products** demanded is as follows: fish are in the lead with 19.59%, followed by a point of meat with 18.56% and processed also with the same figure of 18.56%; three points from the first is the group of vegetables with 16.49% and five the segment of bread and several with 14.43%; and close dairy with 9.28% and pharmaceuticals with 3.09%.

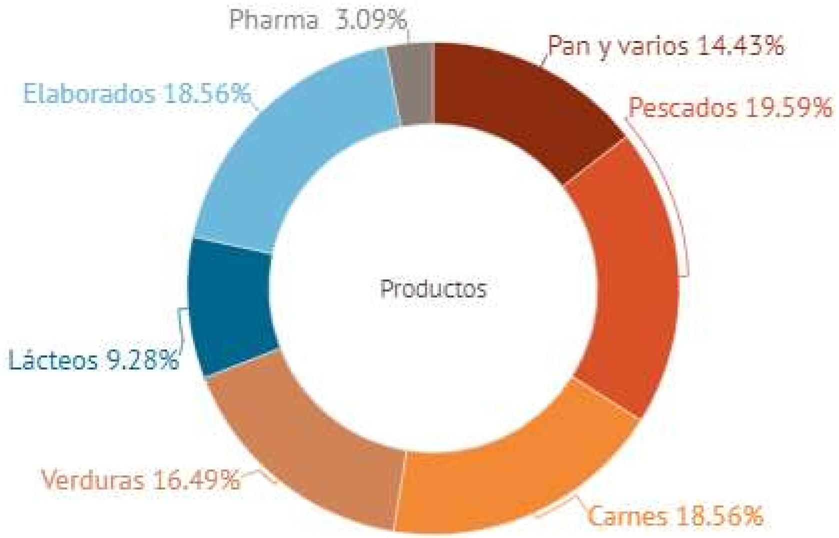



***Figure 4:*** *Distribution of frozen products by categories in Spain: 2021*

***Source:*** *ALDEFE.*

*Methodological note: The percentage of ALDEFE associates who have participated in the survey is 64.03%, calculated in cubic meters of volume.*

***The indicators of the fourth quarter are similar to those of the previous one and show amoderately increasing trend.***

Indicadores internacionales

**international indicators**

## Cold Storage Cost Index, France

The association **USNEF** (*Union Syndicale Nationale des Exploitations Frigoristiques*), in collaboration with TLF (*Transport et Logistique de France*) and TL & Associes, disseminates representative indices of the evolution of the costs of logistics services in France. The cold storage cost index covers all **logistics activities of temperature-controlled warehouses**, excluding transport. It is a composite index of variation of all costs prepared with data from representative companies distributed throughout the French territory, which is calculated in turn from **four sub-indices**:

- The **storage** index, which groups the costs related to buildings, refrigeration facilities, shelves, taxes, etc.
- The **electricity** cost index, representative of electricity costs. Also of interest is the average cost of electricity to freeze one ton, which is obtained by multiplying the average cost of electricity (€/kWh) by 150 (kWh/t).
- The **performance** index, which refers to direct and indirect labor, handling equipment, computers and consumables, etc.
- The ***support*** index**,** which covers other overheads.

In the fourth quarter of 2021, the variation in the costs of cold rooms in France represented a **quarterly increase of 3.52%. The year-on-year variation** was **6.63%.**

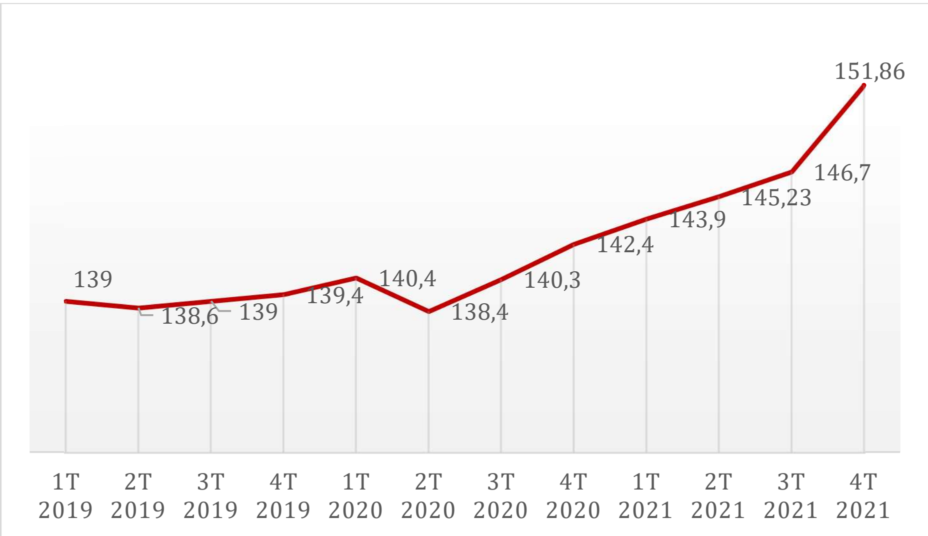


***Figure 5:*** *Index of cold storage costs in France: 2019 – 2021, 4T.*

***Fuente:*** *Union Syndicale Nationale des Exploitations Frigoristiques (USNEF).*

This increase is again mainly due to the rise in electricity prices. The **electricity cost** index remains **brutally bullish** (**20.83**% compared to the previous quarter), with a **year-on-year increase of 38.17%.**


***Figure 6:*** *Electricity cost index in France: 2019 – 2021, 4 Q.*

***Fuente:*** *Union Syndicale Nationale des Exploitations Frigoristiques (USNEF).*

The **average cost of electricity to freeze a ton** in France amounts to **22,666 euros** (**20.83% increase over the previous quarter**). The upward trend has been maintained since the second quarter of 2020, with historical peaks.

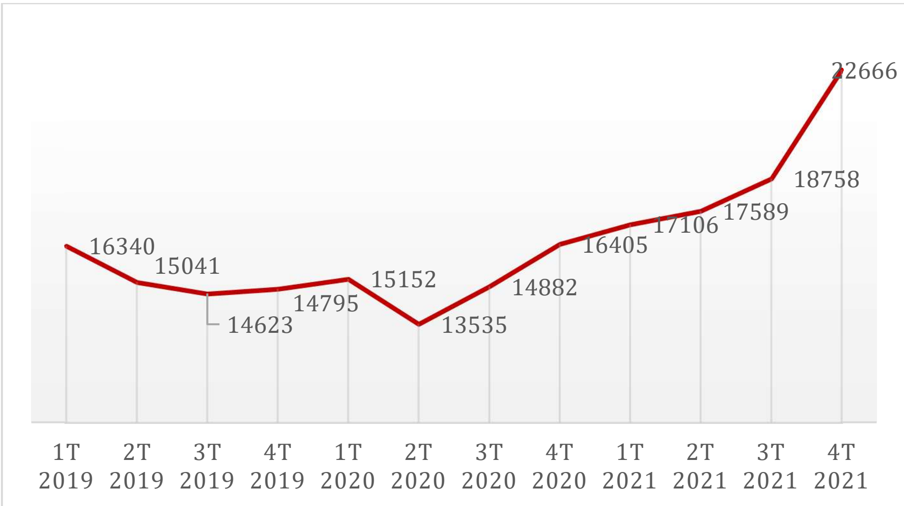



***Figure 7:*** *Average cost of electricity to freeze one tonne in France: 2019 – 2021, 4T.*

***Fuente****: Union Syndicale Nationale des Exploitations Frigoristiques (USNEF).*

## *Cold storage costs in France continue the upward trend due to electricity costs at all-time highs.*

### Logistics indicator, Germany.

Since 2008, the *Bundesvereinigung Logistik* (BVL) logistics indicator has been an important tool for logistics strategists and planners. It provides guidance and is a seismograph for a strongly internationally interconnected economic sector, with more than three million employees in Germany.

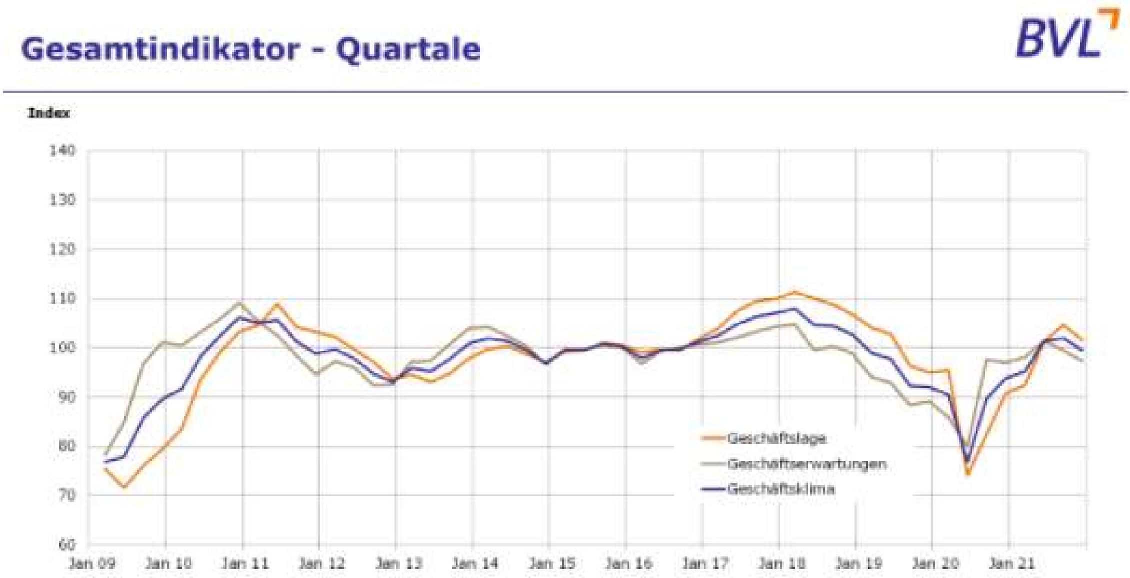



***Figure 8**: Logistics indicator, 2009 - 2021, 4T.*

***Fuente:** Bundesvereinigung Logistik (BVL).*

The latest published survey of the logistics indicator shows a new **downward trend** with the absolute value approaching 100. The business climate in German logistics is, as a whole, better than at the turn of the year 2020 to 2021. But then there was hope that, after the painful lockdowns and the start of vaccines, the situation would continue to improve, while thecurrent reality is a drastic increase in prices, the decrease in inventories in industry and commerce and the reduction of the accumulation of orders in logistics service providers. .

On the other hand, the **high capacity utilization in German cold rooms continues**. The average total utilization of cold rooms in the German Association of Cold Stores and Cold Logistics Companies (VDKL) was 80.7% in 2021, slightly lower than the previous year (81.4%). Pork stock levels have increased significantly compared to the previous year (up 5.4%) due to African swine fever, occupying more than 80,000 European pallet spaces. Non-food product groups (e.g.

medical devices, medicines, vaccine serums or blood plasma and other non-food items) experienced a growth of 0.9%.

The figures in this research series, which is unique in Germany, are of representative value and reflect reliable trends, as VDKL accounts for more than 80% of commercial cold rooms in Germany. Members are service, industrial and commercial companies active in the field of temperature-controlled logistics for fresh and frozen products.

***Germany's logistics indicator shows a downward trend again. High capacity utilization in cold rooms continues, with occupancy at 80.7% in 2021.***


# general economic indicators of Spain

## Consumer Price Index (CPI)

The **Consumer Price Index published in February** places its annual variation at **7.6%** in February, 1.5 points above that registered in January.  Among the **groups with a positive influence** on the increase in the annual rate, the following stand out:

- **Housing**, whose annual variation of 25.4 %, more than seven points above that registered in January, is due to the behavior of electricity prices, which this month decreased, but less than in February 2021.

- **Food and non-alcoholic beverages**, whose variation increases by eight tenths, to 5.6 %. Highlights in this evolution are the increases in the prices of legumes and vegetables and milk, cheese and eggs, which fell in 2021, and of bread and cereals, greater this month than last year.

This figure represents **the highest in the last 33 years**, and the fourteenth consecutive positive rate. After almost three decades of contained prices, there is great uncertainty about how all the actors involved can react: families, companies, politicians, investors...

In **February, the monthly rate of change of the general CPI is 0.8%.** On the other hand, the **annual rate of inflation underlies** and increasessix tenths, up  to **3%,** and a generalized rise in most sectors. Everything indicates that the leakage of high general inflation rates to the different components of the shopping  basket is accentuating.

Energy and food are goods with a relatively rigid demand in the short term, as they have no comparable substitutes. At the end of January, flours and cereals already showed increases of 10.6%, pasta by 20%, sheep meat by 12.6%, olive oil by 30%... with electricity (46.4%) and fuels (44.6%) breaking records. It should be remembered that the energy component weighs about 12% in the consumption basket in Spain: **with oil prices sustainably around 130 dollars per barrel, inflation would reach double digits**.

The Spanish CPI far exceeds the level of the Eurozone (5.8 %) and is at the level of the values of the United States (7.5%).


***Figure 9**: General Price Index (CPI) in Spain, January 2020 – February 2022.*

***Source:** National Institute of Statistics.*

As for the **estimates**, according to eleconomista.es inflation could reach a peak of 10% if there is a serious interruption of the supply of Russian gas and oil to the European Union as a result of the war in Ukraine. If, on the other hand, the conflict does not intensify so much and is limited in time, and based on the prices observed in the energy forward markets, inflation would peak in April, before gradually falling until the end of the year. And this without forgetting that, in addition to the problem with energy sources, both Ukraine and Russia are important producers of food, fertilizers such as ammonium nitrite and other raw materials.

The price boom is linked to supply problems, which offers an even more worrying picture as it implies limited GDP growth and the erosion of the purchasing power of families and the margins of many companies. It seems, therefore, **fertile ground for stagflation** (flat growth with high inflation), which would be aggravated by the huge volume of public debt.

***The estimated annual CPI reaches its highest value in the last 33 years: 7.6% and could reach double digits. The risk of stagflation (**flat **economic growth with high inflation) threatens the Spanish economy.***

## Gross Domestic Product (GDP)

The Spanish gross domestic product (GDP)registered a **variation of 2.0 % in the fourth quarter of 2021** compared to the previous quarter in terms of volume.

The **year-on-year change in GDP stands at 5.23%**

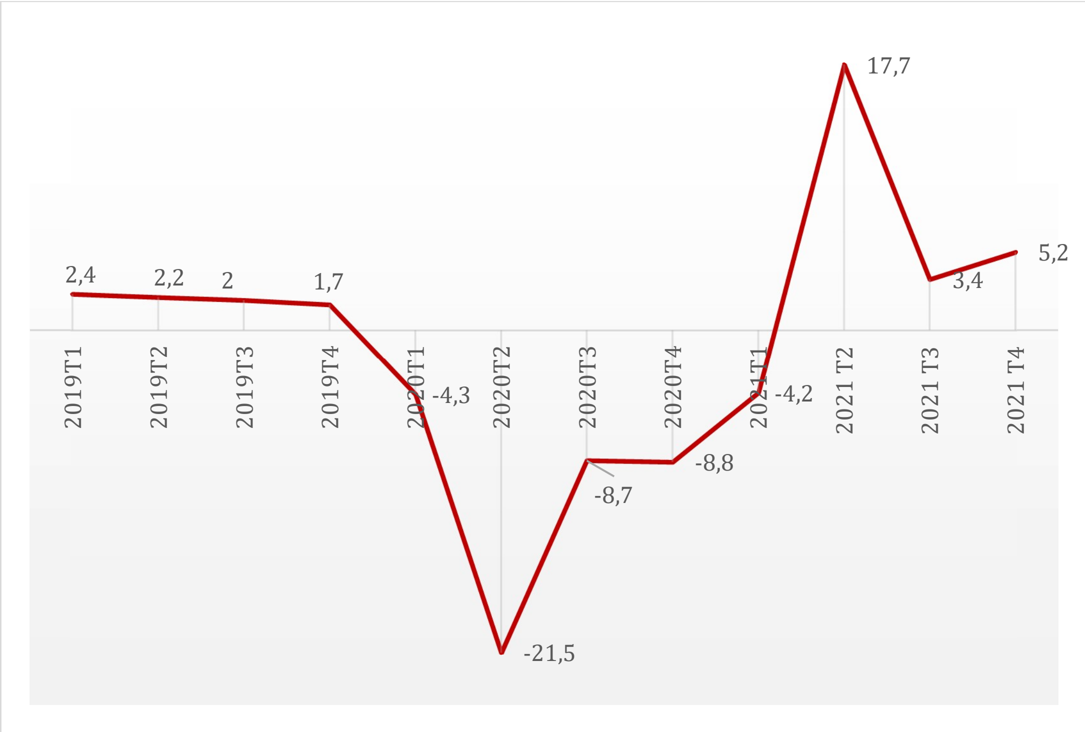



***Figure 10:*** *Gross Domestic Product (GDP) in Spainat market prices, 2019 – 2021, Q4.*

*Annual variation. Chained volume indexes.*

***Source****: National Institute of Statistics.*

The **contribution of domestic demand** to year-on-year GDP growth this quarter is 3.6 points, 1.1 points higher than that of the third. On the other hand, external demand presents a contribution of 1.7 points, eight tenths higher than that of the previous quarter.

**Investment in tangible fixed assets** showed a year-on-year variation of 2.3%, which is 4.0 points more than in the previous quarter. Investment in machinery, capital goods and weapons systems increased by 4.2 points to 10.3%.

**Exports of goods and services** show a variation of 15.8% compared to the fourth quarter of 2020, which is 1 point more than in the previous quarter. This acceleration is caused by the increase in exports of services (from 42.3% to 73.4%) and despite the decrease in the year-on-year rates of exports of goods (from 7.9% to 0.7%).

Regarding **supply**, the gross value added of the industrial branches increased by 1.2 % compared to the same quarter of 2020, which represents an increase of 1.1 points compared to the year-on-year variation registered in the previous quarter. Within them, the manufacturing industry presents a rate of 0.3 %, with a decrease of 0.5 points compared to that of the previous quarter.

The Spanish data **contrasts with that of other European economies of reference**. In 2021, the British economy was the one that marked a greater rise among the G7 countries, 7.5%, after having suffered a recession of 9.4% the previous year. France experienced a 7% increase in 2021 compared to a 7.9% contraction in 2020. The economy in Italy expanded by 6.4 % in 2021, after contracting by 8.9% in 2020.

As **for the estimates for the year 2022**, the Council of Economists has modified its initial range with growth of between 5.6% and 5.8% to another with increases ranging between 5.2% and 5.4%, provided that the Russian-Ukrainian war conflict does not last. Although in terms of intra-Community exports and demand for services the war will not be a great shock, the aforementioned escalation of energy prices, which will spread to other products and items in the shopping basket, will cause a negative drag effect on the economy as a whole. Some economists estimate the potential impact of the war at around 1.5% of GDP. On the contrary, it is to be expected that the execution of European funds will play in favour of Spanish GDP.

***The most optimistic updated forecasts estimate Spanish GDP for2022 at around 5%.***

## Unemployment rate

**The number of unemployed**registered in the public employment registers (SEPE) at the end of February decreased **by 11,394 people** (-0.36%) compared to the previous month. It is the largest drop in a month of February since 2015. In year-on-year terms, **registered unemployment stood at 3,111,684 people in February**, falling by897,105 people compared to the same month of 2021 (-22.38%) in february, which represents the largest year-on-year decrease in the historical series. Unemployment fell in all the autonomous communities in year-on-year terms.

**By sector**, the percentage of permanent contracts registered in February was particularly relevant in construction andservices. By economic sector, with respect to January, registered unemployment fell in services by 11,238 people (-0.51%), construction by 7,199 people (-2.87%) and industryby 2,625 people (-1.03%). On the other hand, it rose in the gricultura, with 6,543 more unemployed (4.41%), and among the group sin a mpleo anterior, which ends February with 3,125 more registered people (1.27%).

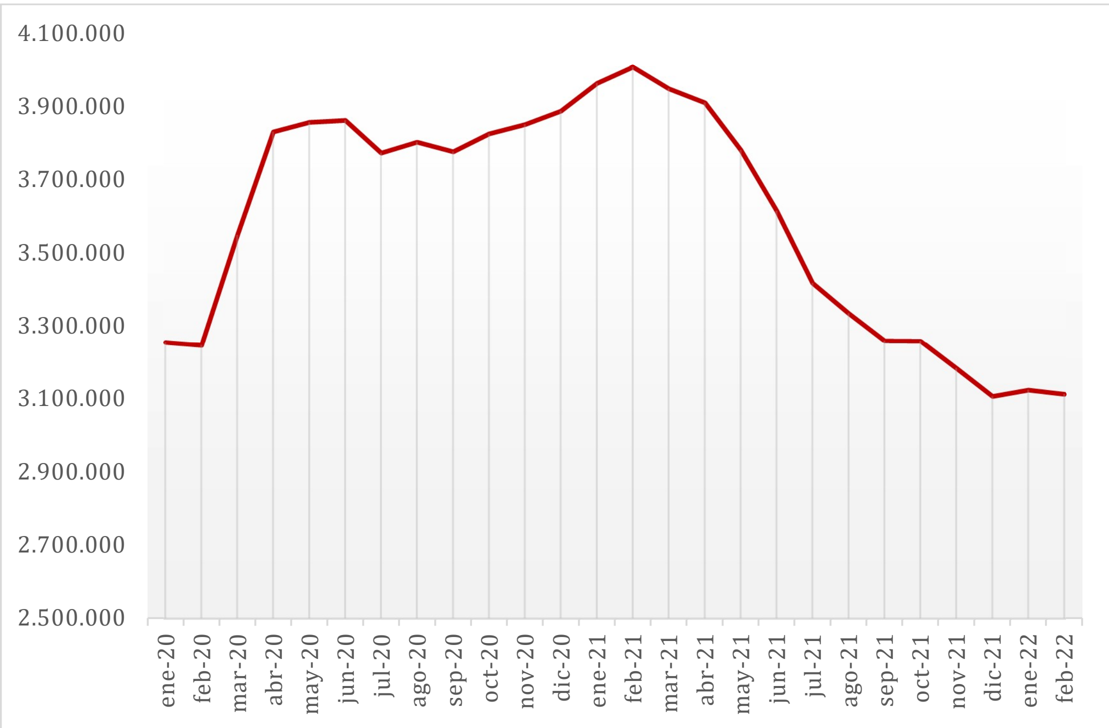



***Figure 11**: Registered unemployment in Spain, January 2020 – February 2021.*

***Source**: State Public Employment Service.*

Despite everything, **Spain is the OECD country with the highest level of unemployment (13%),**ahead of Greece (12.7%). In the euro area, theseasonally adjusted unemployment rate was 6.8% in January 2022, the latest data available. In addition, Spain also has the highest levels of youth unemployment (30.6%), ahead of Greece (30.5%) and Italy (26.8%).

The number of **workers protected by a Temporary Employment Regulation File linked to Covid-19**, who are not included among the unemployed, closed in February at 101,736 people. The effect of the return to normality of activity and the reincorporation of employees under an ERTE is, in the opinion of Funcas, disappearing, so that the employment increases that are expected from now on will be more moderate. The consultancy R*andstad Research* believes that employment will grow at a much slower pace in the remainder of 2022, conditioned by the military conflict and the high CPI.

***The unemployment rate continues to decline, but the forecasts due to the uncertain economic context are not very encouraging.***

## Harmonised business confidence index

The Harmonized Business Confidence Index (ICEA) **decreased by 2.5% in the first quarter of 2022** compared to the fourth quarter of 2021. 14.7 % of business establishments expect a favourable quarter and 27.5 % are pessimistic about the progress of their business.

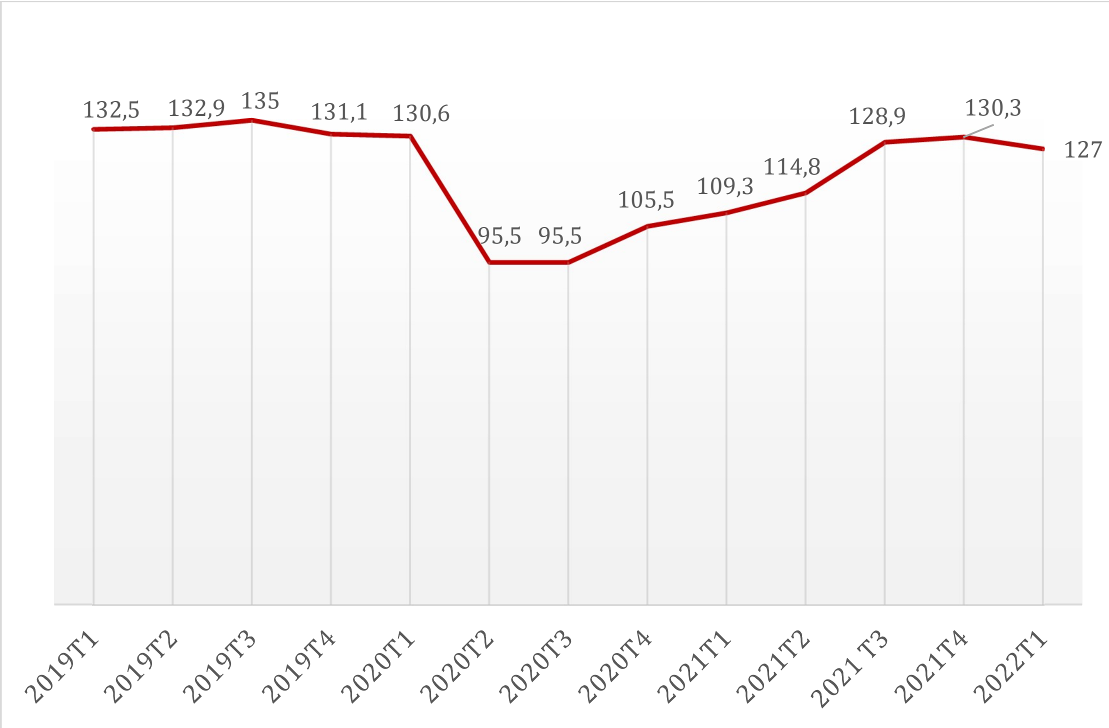



***Figure 12:*** *Business Confidence Index in Spain, 2019 – 2022 Q1*

***Source:*** *State Public Employment Service.*

The five sectors analyzed (transport and hospitality, commerce, construction, industry and other services) decreased confidence compared to the previous quarter. Transport and hospitality (−6.9%) showed the largest decline. By size of establishments, those with more than10 employeesshowed the greatest decrease in confidence (−3.8 %).. On the other hand, establishments with 1,000 or more employees registered the only increase (2.9%).

By autonomous communities, the largest decreases occur in the Principality of Asturias (−9.7 %), the Balearic Islands (−6.6 %) and the Autonomous Community of Navarre (−5.6 %). The only increases are recorded in the Community of Madrid (3.1 %) and Aragon (2.1 %).

7.3 % of managers of business establishments believe that employment, referring to personnel hired in their business, will increase in the first quarter of 2022, while 14.5% believe that it will decrease. The remaining 78.2% believe that it will remain stable.

7.9 % of industrial establishments expect to use less than 40% of their production capacity in the first quarter of 2022, compared to 7.3 % in the previous quarter. On the other hand, 22.1% of industrial establishments expect to use more than 90% of their productive capacity in the quarter that begins, compared to 22.5% declared last quarter.

***Business confidence is reduced, with pessimism showing especially among smaller establishments.***


MARKET

**This second part of the quarterly report analyzes the general evolution of the market. The Russo-Ukrainian war will have negative effects on the price and disposal of** feed **material. E-commerce of perishable products and the substitution of meat and fish for plant-based foods continue their emerging trend with the emergence of new services and products.**

**The most outstanding facts related to the evolution in the market of the main categories of frozen products are analyzed: meats, processed products, fruits and vegetables, fish, dairy and bread and pastries.**

**Indicators point to a decline in demand for pork by Asian markets. In contrast, new business projects and the construction of meat facilities are undertaken. In general, there are investment movements in the food sector, which contrast with a horizon of rising prices.**

## Market evolution

It is clearly impossible not to start our quarterly analysis without taking into account the **potential impact of the crisis in Ukraine** on the entire value chain of the agri-food industry.

Theconflict is an obvious blow to the already strained supply chains, which in the last year accumulate a pandemic, the collapse of the Suez Canal, the microchip crisis or the rise of raw materials.

Trade between Spain and Ukraine is mainly based on the import of cereals, clay, salt and gypsum. In total, Spanish exports 2021 amounted to 681.8 million euros, 409 transported by road, while imports reached a value of 1,547.7 million euros, almost all of them (1,417 million euros),by sea. Spain exports especially fish, crustaceans and molluscs (4.9% of the total sum);; thesecond most relevant chapter is that of canned vegetables and fruit (4.1%).

30% of the maize that Spain imports throughout the year comes from Ukraine, but most of this corn enters the first half of the year. And this war is taking place in the semester in which the entire **European animal feed industry is very dependent on Ukrainian corn**, with the month of February being the month where the greatest activity is concentrated. Consider the pig sector:70% of the cost of production corresponds to feed, so if the supply of Ukrainian maize is paralyzed, it would increase the cumulative increase of 32% that has already registered the feed for livestock for a few months. Without water, without economic feed and with energy through the roof: mto the outlook for this strategic sector.

In the case of **Russia**, the amounts involved are higher. Imports from this country amounted to 6,034 million euros in 2021 and exports 2,213 million euros. For all these materials, we can expect disruptions and potential shortages, which threatens to increase the prices of many products and services. Even before the start of the war, theInternational Monetary Ministry warned Europe of the risk that the supply crisis would extend into 2023.

With no link to this conflict, in January it was confirmedthat **the Russian supermarket chain Mere**, which intended to open 40 stores in 2021 with the intention of "being the cheapest in Spain" is liquidating its stock in the only eight stores that had begun their activity. In this way, the company, belonging to the Torgservis holding company, **puts an end to its entry into the Spanish market** when not even one year has passed since its first opening.

Spain closed 2021 with more than **200,000 registered points of sale** (more than 161,770 shops, more than 26,090 supermarkets and more than 8,620 self-service establishments) according to the *UVE Data Food 2021* census.

According to data from the kantar consultancy collected in elmercantil.com, mercadona **has reached 24.9% market share**, compared to 24.4% in 2020 and 25.6% compared to 2019 as a result of the commitment to its new stores and brands. It is followed by Carrefour, which has taken its strategy to omnichannel and has registered 9% market share. In third place was Lidl. Dia, after streamlining its portfolio of stores, has reached a share of 4.8% thanks to the relaunch of its own brand. Regarding the regional operators, Kantar figures at 16.5% the accumulated share in 2021, being the ones that rise the most the supermarket chains of Catalonia and the Valencian Community, where they gain 0.6 and 0.9 points respectively.

In the opinion of professors Pablo Foncillas and Pol Santandreu, the physical supermarket has a lot of future, although **the super of the future will be different**: a mixture of two physical and online models. In the opinion of the aforementioned authors, those firms among the traditional ones with a clearer model, such as, for example, those that have a powerful white label, are in a better position to compete in the future.

In this line, **Carrefour accelerates its online business in Spain with its ecommerce platform for food**. Located in the Madrid town of Getafe, it has 10,000 m2 of surface, offers a maximum capacity of up to 4,000 daily shipments, and will be its first logistics platform in Spain specialized in the management of food products for online sale.

The chains' bets on this channel seem logical, since the moment in which the food e-commerce soared 175% in Spain in 2021. The consultancy XChannel clarifies that themarketplaces, born as transactional platforms, are becoming the center of *full-funnel cross-channel* activity in the food sector. 60% of users prefer this type of platform as it allows them to search and obtain information about products, while 40% use it to make comparisons (product, prices ...) in their purchases. According to the start-up Kubbo, *same-day* and *next-day* deliveries, flexible deliveries, the digitalization and deployment of 5G and environmentally friendly proximity logistics will set the trends in the sector in the coming months.

Special attention ***deserves*** the so-called quick commerce (q-commerce or fast e-commerce) that promises the almost immediate delivery of convenience products. He explains foodretail.es thatthe number of small or single-person households is growing rapidly in Spain, and that has led to a growing demand for the delivery of products in small quantities, in which q-commerce is specialized. Toimplement this type of delivery in such a short period of time, companies have logistics centers located in the center of cities intended only for these online orders. Dija, Gorillas and Getir are three international companies in this sector that have already settled in Spain.

Parcels **are** therefore a **booming business and also in the cold sector**. Correos recently presented its new Correos **Frío** service, an alternative to make temperature-controlled shipments of goods that require specific care during the journey, such as pharmaceutical products or food. Correos Frío has isothermal and refrigerated vehicles specially designed to guarantee the control and maintenance of the cold chain of shipments. Orprovide a service specially designed for laboratories and distributors who move products to clinics, hospitals and health centers. It also provides services to wholesalers to distribute fresh products such as vegetables, fruits, meat or fish, as well as supermarkets, communities and the hotel and restaurant sectors.

And, in the meantime, **Amazon** continues "to do its thing." The company recently announced that it has extended its service of fast deliveries of supermarket products to Valencia. The entry into the Valencian capital follows the incorporation of Madrid and Barcelona in 2021 to this line of deliveries for more than 7,000 references that include fresh and frozen products, meat, fish, fruits and vegetables, dairy, snacks, basic necessities, as well as beauty and personal care products, toys and stationery. In this way, the North American company **extends its fast delivery services to new locations and maintains its commitment to speed** in e-commerce services, as well as **shipments of perishable products**, a trend that is on track to consolidate Spain after the pandemic.

The pandemic also accelerated the growth of ***dark kitchens and stores*** (orphysical locations that are closed to customers and serve as processing centers or distribution points). An example of a successful dark kitchen business in Spain is Avanza Food. Avanza Food is developing plans for its Dark Kitchens & Virtual Brands division, a multi-brand restaurant that will operate with up to 8-10 brands across its portfolio, exclusively through takeout or delivery. Dark stores were adopted by startups and large retailers. In Spain, the supermarket chain Dia adapted its logistics, favoring the mixed distribution model from '*mini dark stores*', streamlining last-mile distribution and providing flexibility and efficiency to the operation. Other large supermarkets that have joined the dark supermarket industry are El Corte Inglés and Mercadona.

Regarding **product innovations**, the companies' commitment to **meat and fish substitutes continues**. However, according to alimarket.es, there is a certain slowdown in the growth of this type of product in the North American market; which, despite everything, shows increases of 19.1% in refrigerated temperature and 9.2% in frozen. The leaders of the Spanish plant-based market have, however, no doubts about the unstoppable boom of the category, supported by the consolidation of *flexitarianism* as a consumption habit of 21% of Spaniards.

Thus, Green Cuisine (Findus), leader of quota in the frozen sector, reports having doubled its turnover during the last year. According to cárnica.cdecomunicacion.es, Campofrío Vegalia, Campofrío's line of vegetarian products has grown by 40%, thus reaching its penetration record.

The brand has reached 1.2 million homes and has positioned itself as the fastest growing manufacturer brand, adding more than 353,000 home buyers in a year. In this line, the *Nestlé Observatory on Nutritional Habits and Lifestyle of Families highlights* that 40% of Spanish households say that they have already regularly incorporated meat substitute products, and 4 out of 10 point out that they would incorporate them more frequently if there were more availability in the usual points of sale.

Vegetable **proteins** are the main ingredient in the production of meat analogues. Extrusion technologies are used for its transformation, at high and low humidity, which aspire to replicate the texture of the original products. Legumes, cereals, insects, etc. are being explored. as alternatives to soybeans, which is the most commonly used raw material today. The European Union's novel food legislation is evolving very rapidly, especially on the **use of insects** as ingredients for human consumption. In an exhaustive review of the approvals produced in theEuropean Union between 2021 and 2022, the AINIA technology center refers to specific regulations that authorize, among others, the commercialization of frozen, dried and powdered *migratory locusta*, frozen, dried and powdered *Tenebrio molitor* and frozen, dried and powdered *Acheta domesticus*.

It is a trend that, predictably, finds its greatest expression among younger people. Alimarket.es echoes a report by Barry Callebaut that reports thatmillennials and Generation Z (ages 18 to 44) are more likely to actively pursue a *plant-based* diet, expect from companies a greater variety in the offer and would be willing to pay a higher price for these types of products, and The *Green Revolution 2021* (Lantern) report goes even further, disaggregating that age group and reporting that 66% of young people between 18 and 24 say they are willing to buy cultured meat, a figure much higher than that of the next age group, adults between 25 and 34 years old (51%), or adults between 35 and 44 years old (46%).

As stated in the report *Foodtech in Spain: moving Spanish food system forward*,the Spanish market for **alternative proteins** has grown exponentially, being one of the most active in the ecosystem. The rapid growth of the Spanish market for plant products is due to the actions of innovative players in the ecosystem, including large companies, technology and research centers and disruptive start-ups.

Apart from its developments in **the plant-based market**, Spain is committed to scaling technologies that allow the country to promote the development of more sustainable and tasty alternatives. These technologies are being applied for dairy products, whosebest example is the Mylkcubator program of Easterl; for meat products, with the important move of the acquisition of Biotech Foods by meat producer JBS;  and for plant-based seafood printed in 3D of great realism such as those developed by the startup Cocuus.

In the last year, the application of biotechnology has played a very important role in the development of solutions to produce sustainable protein sources. Fermentation is gaining traction in the market, with startups working in the area of precision fermentation and biomass (mycoprotein). MOA Foodtech is one of the most recent and promising startups in Spain, which uses food waste and by-products from food production as raw material to create proteins that will be used in different lines of the food industry. New sources of protein such as algae or insects are gaining scalability, through the expansion of factories. Thisis the case of the microalgae producer Algaenergy and the insect producer Tebrio.

***The Russo-Ukrainian war will have negative effects on the price and disposal of feed material. E-commerce of perishable products and the substitution of meat and fish for plant-based foods continue their emerging trend with the emergence of new services and products.***


MEAT SECTOR

The succession of recent events seems to have all the ingredients to become a **perfect storm for the meat sector**, directly affected by the problems of supply and increase in the price of feed and by the runaway rise in energy costs.  To this must be added, as has been stated in  previous reports, the tendency to reduce meat consumption among certain consumers.  And it should be remembered that, witha turnover of 31,727 million euros in 2021, 13% more than last 2020, the meat sector represents 28.5% of the entire Spanish food sector.

### Demand and consumption.

The **consumption of fresh** beef in Spanish households  showed a significant decline of 11.2% between January and November 2021, that of goats and sheep of 19.1% and that of pigs by 12%, according to the latest data available from the MAPA. These figures contrast with the increase in exports in this period.  According to theSpanish Foreign Trade statistics MINCOTUR, exports of fresh and frozen beef increased by 3.6%, with a notable increase in flows to countries of the relevance of France and Germany, sheep grew by 27.5% and pigs, by 6.5%, the latter driven once again by the increase in exports to China (+6.3 %) and other Asian countries, which absorbs the slowdown in exports to other European territories.

It is necessary to stop, because of its importance, in the **Chinese market**. Already in December, China suspended the acceptance of the import declarations of pork products of the company Bopepor, located in Gallur (Zaragoza), specialized in suckling pigs that has its own farms, slaughterhouse, cutting room and cold store and that until that moment was authorized to export frozen pork (bone-in and pitted), unrefined frozen pork fat, as well as frozen edible pork organ meats and offal. Bopepor became the ninth Spanish company affected by this type of revocation.

If the scope is opened with a more forward-looking approach, it is necessary to bring up *the EU Agricultural Outlook Report 2021-31* that theEuropean Commission published at the end of 2021, which reflects on the horizon of the sector in the medium term. By 2031, **global meat consumption is expected to continue to grow** (+1.4% per year), thanks to increased population and incomes in developing countries. While a large part of global demand will be met by domestic production, an additional 3.4 million tonnes of meat imports (especially poultry and beef) will be needed to fill the gap in many countries, in addition to the current 37.3 million tonnes. The EuropeanUnion will benefit only to a limited extent from the additional demand, mainly for poultry meat. The share of EU exports in world trade will decline from the current 20% to 17% by 2031, due to the **decline in pork exports to Asia.**

The recovery path **of China and other Asian countries from African Swine Fever** (ASF) will be decisive. China is already in pork production figures similar to those of 2017 (just 0.44 million tons less). Other relevant data in this regard are that during 2021, registered breeding pigs and sows increased by 10.5% and 4.0%, respectively, compared to the end of 2020. The Asian country reported meat imports in 2021 worth 9.38 million tons, 5.34% less than in 2020, when it imported 9.91 million: morethan half of that amount is pork, and 25% beef.

It is also worth integrating the fact that the reduction in the availability of pork in between 2019 and 2020 led Chinese consumers to try alternative proteins more frequently, giving some degree of permanence to the increase in demand for beef and sheep and affecting the demand for pork. In fact, the USDA projects that pork consumption in China will remain 1 3% below 2016-18 levels in 2022.

Pork imports will be reduced in 2022 according to the USDA, motivated by the low price of domestic versus imported pork, which has risen from 8 to 12%, in addition to being affected by the continuous restrictions related to covid-19 and the supply crisis. The top five pork suppliers in China are expected to remain Spain, Brazil, the United States, Denmark and the Netherlands.

And to have the complete photograph, you must collect the announcement, reported by carnicacdecomunciacion.com, that theMinistry of Finance of China announced on January 1 the **increase in tariffs on pork imports**. This is a new measure taken after the continuous recovery of its pig herd, which has decreased its dependence on the outside in this type of meat. Specifically, the tariffs that apply to the countries that export the most to China will go from 8% to 12%. It should be remembered that in 2020 the Asian country lowered tariffs on frozen pork from 12% to 8%.

The **European Union's pigmeat sector** increased production by 0.6% per year in the period 2011-2021. However, African swine fever will have lasting effects in the EU, while export opportunities will be gradually reduced overall. The EU therefore forecasts pork production to decline by 0.8% per year in 2021-2031. It is likely, however, that the EU will remain the world's largest exporter of pork, with a market of 37%.

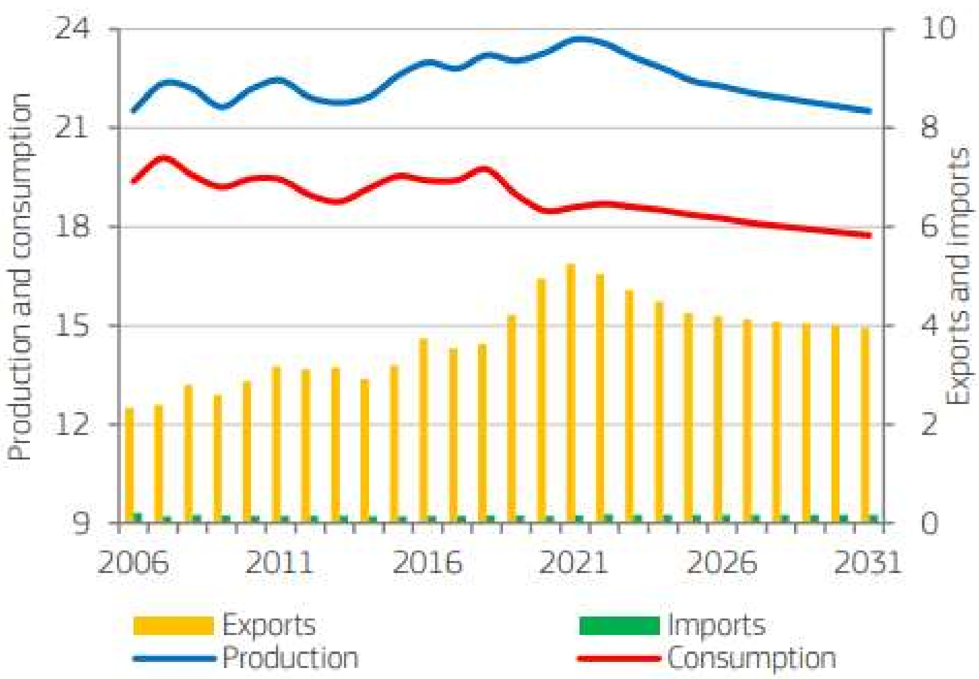



***Figure 13**: Balance of the EU pork market (million tonnes).*

***Source:** EU Agricultural Outlook Report 2021-31. European Commission.*

**The European Union's meat consumption will decrease** from 69.8 kg in 2018 to 67 kg per capita by 2031, contrary to the global trend. The overall drop will be accompanied by a change in the shopping cart. Beef is expected to continue its downward trend, and the gradual replacement of pork by the consumption of poultry meat. Sheep meat consumption is alsoexpected to increase slightly thanks to the diversification of the meat diet and changes in the EU population (religious traditions and migration).

Sustainability, with its environmental, economic and social objectives, will play an increasingly prominent role in EU meat markets, for both producers and consumers. Consumer concerns about the environment and climate change will lead to more attention being paid to the production process and the origin of the product (e.g. local markets, organic and quality programmes, animal welfare and environmental footprint). Other drivers of changes in consumer habits range from health considerations (lower or no intake of animal protein) to convenience, with a shift from fresh meat to more processed meats and preparations. In the opinion of the European Commission,laboratory meat is not expected to become a competitor to meat in the next 10 years due to problems with consumer acceptance and price. Plant-based meat alternatives accounted for around 1% of total meat sales in 2020. This sector will grow in importance, but it will still represent only a very small market share.

## Companies.

Companies inthe meat sector have shown great effervescence in recent months.

The meat companies Goikoa (processed meat) and Alejandro Miguel (cutting and packaging of pork and production of cured processes), together with the cattle rancher Los Alecos, created **GAM Family.** It is a new group of feeding with control of the entire production process, including livestock, meat production, cutting and packaging of fresh meat and manufacture of processed cured meat, cooked white and Iberian pork, whichwill add a turnover of 250 million euros and a presence in more than 50 countries around the world.

The **Costa Business Group**, with headquarters in Fraga (Huesca), acquired in January Juan Luna, a leading company in slices and cheese and meat snacks and whose majority shareholder until now was Nazca Capital. This brand joins the holding Company Costa Food Group, the only national meat company currently fully integrated into white and Iberian pork, chicken and turkey. Fromthe Juan Luna plant in Sollana (Valencia) ready-to-eat meat and cheese are made in different formats: slices, tacos, dice, wedges, boards, cases... The company has 245 employees and its aggregate turnover in 2021 was 56.5 million euros. The aggregate turnover forecast in 2021 for the Costa Group is 1,700 million euros.

Also in January, theGipuzkoan firm **Dastatzen Group** announced the acquisition of the main meat distributor in Álava, Sáenz Horeca, a company of meat origin dedicated to the handling, transformation, sale and distribution of products to the hospitality channel.

**Cárnicas de La Litera**, Grupo Pini's second project in Spain, has started operations in the municipality of San Esteban de Litera (Huesca). The new plant, intended for the slaughter of mother sows and cutting room, has involved an investment of more than 13 million euros and the creation of 150 new direct jobs. The slaughterhouse has a production capacity of 125 heads per day, with a forecast of progressively reaching 1,600 animals per day. The plot has a total area of 8.2 hectares, with a central nave of 8,000 m2. In addition, the project includes a water storage pond for 10,000 m3, a station for the treatment of drinking water, a wastewater treatment plant and a washing and disinfection center for heavy vehicles.

At the end of February, diariodeburgos.es echoed the announcement by **Campofrío** of the **construction of a large logistics platform** to serve the Campofrío Frescos and La Bureba plants, with the capacity to produce and move up to 260,000 tons of meat products each year destined for more than 30 countries. The new regulatory warehouse, which the multinational will promote together with ID Logistics in 42,680 m2 of Villalonquéjar IV (next to Campofrío Frescos), involves an investment of 25 million euros, the creation of up to a hundred jobs for the coming years and, by extension, the consolidation of the more than 2,300 direct local jobs generated by this industry. In Campofrío Frescos, 9,000 animals are slaughtered and processed every day, with an annual production capacity of 200,000 tons per year, half of which are destined for export, mainly to China, Japan and South Korea.

To serve this foreign market, in 2017 the freezer warehouse of the Villalonquéjar plant was inaugurated, which allows to store 5,000 tons of meat products (8,400 pallets). Right next to it, occupying seven plots, the ID Logistics regulatory warehouse will come into operation from the first quarter of 2023. Campofrío already anticipates that it will be equipped with the most cutting-edge technologies in mechanization, robotization and artificial intelligence systems. The company is simultaneously working on the installation of photovoltaic panels on the roof of Campofrío Frescos, with which it is planned to generate more than 4 million kilowatts / year. In the field of digitalization, the meat company has developed a project in collaborationwith the Massachusetts Institute of Technology (MIT) and Accenture to assess the resilience and strength of its supply chain, from a global point of view in Europe. Likewise, the company is working with startups specialized in artificial intelligence or *machine learning* to increase the efficiency of the supply chain, anticipating the needs of its customers and any eventuality that could affect the service.

For its part, in February themeat industry **in León Embutidos Rodríguez** , dedicated to the slaughter, cutting and processing of products from the pig sector, with a turnover of 210 million euros, was acquired by the Vall Companys group. Therelationship between both companies isfar from afar, since Agrocesam , a livestock integration company of the agri-food group based in Valladolid, is the main supplier of sausages from Embutidos Rodríguez.

Cobadu, Caja Rural and businessman Felipe Rebollo have joined forces, according to carnicacdecomunicacion.com, to promote the **construction of a beef slaughterhouse in Fuentesaúco (Zamora)** that, if it becomes a reality, **aspires to become one of the three most important in Spain**. The project is expectedto have an initial investment of almost 27 million euros and initially employs 250 people, with the forecast of reaching 400 employees. The new slaughterhouse would be located on an area of 27 hectares near the current slaughterhouse in the town managed by Felipe Rebollo and which is dedicated to cattle and pigs

Also the Orensana **Coren** has been in the news lately. On the one hand, the positive, plans to expand and automate its meat processing plant in Lugo, a project that will have an investment of 10 million euros and has been considered a priority business initiative by the Xunta de Galicia. The project includes the construction of a new industrial warehouse, as well as the acquisition of machinery, equipment and software, which will allow the company to automate the cutting line, product classification, storage and picking. But, in parallel, the company, which imports about 50,000 tons of cereal per month from Ukrainian territory, has already declared that the situation generated by the war is unsustainable and, if it does not improve, they will predictably have to close farms.

The situation is also complex for **Grupo Fuertes**, which had recently increased its stake in Grupo Cherkizovo, a Russian holding company with which it joined a decade ago as a partner for turkey production, to the point that Cherkizovo is the largest investment in the portfolio of investees of the Murcian family. Cherkizovo Group is the largest meat producer in Russia and is present in the poultry, pork and processed meat sector. It has nine full-cycle poultry production facilities, sixteen pork production facilities, eleven meat processing plants, nine feed mills and three hundred thousand hectares of cultivation. Thewar has put this investment in the spotlight due to the wave of SANCTIONS from the US and the European Union on Russian interests, as well as the reprisals that the Kremlin may adopt.

***Several indicators point to a decrease in the demand for pork by Asian markets. In contrast, new business projects and the construction of meat facilities are undertaken.***

# Productos elaborados

## PROCESSED PRODUCTS

The **consumption of prepared dishes** at home reached 654,614 tons in Spain in 2021, **1.7% more than in 2021,** according to data from the Spanish Association of Manufacturers of Prepared Dishes (Asefapre). During that period, per capita consumption reached 16.8 kg. According to Technavio's forecasts,the size of the global ready-to-eat food market will grow by USD 71.69 billion between 2021 and 2026. The market research company predicts a year-on-year growth of 6.63% in 2022.

**Pizza** continues to be the most consumed prepared dish in Spanish households, reaching 131,748 tons (90,121 refrigerated and 41,627 frozen). This data is fully aligned with global trends, as the size of the frozen pizza market is expected to increase by USD 4170 million between 2020 and 2025. Technavio comments that the frozen pizza market is fragmented, with the presence of several regional and international players. International players are increasing their presence in the market by expanding their operations. To compete with such large players, regional suppliers are focusing on technologically advanced products and forming strategic alliances with other suppliers.

Pizza is followed by products such as rice-based dishes, which increase by 36.7%, refrigerated tortilla, with an increase of 24.1%, or vegetable alternatives, which enter homes with force by growing by 17.6%.

By **category,** refrigerated dishes lead the sector, after increasing their volume by 4.9%, reaching 315,062 tons. It is followed by frozen dishes, whose consumption fell by 1.8%, to 251,578 tons, and those kept at room temperature, which grew by 1.2%, (87,974 tons).

The positive data from the sector of prepared dishes contrast with the evolution of consumption at home, where the purchase of food and beverage productsd decreased by 5.5%. Ready meals have not ceased to gain popularity over the past decade; thus, the volume of production has grown by 36% since 2011 and that of export, by 63%.

As for the **business movements**, striking is the operation ofthe company **Clavo Food Factory**, which has just incorporated a new factory into its business. Thefactory will be located in Reinosa, in the polygon of La Vega, in the warehouses of an old cannery, and will consist of state-of-the-art machinery to accommodate the production of frozen, refrigerated and fifth range, environment in which the group develops its activity.  The company has invested five million euros in this its third factory, which is added to those of Tordesillas (Valladolid) and Caldas de Reis (Pontevedra). Between them, the group employs more than 400 people: theReinosa factory will generate 200 more direct jobs.

***The trend of increasing elaborate dishes, mainly deep-frozen, is consolidated.***

# Frutas y verduras

## FRUITS AND VEGETABLES

In recent months, business movements have taken place that involveSouth American companies. On the one hand, **the multinational Virú has bought the plant owned by Ardo in Marcilla** (Navarra) and contemplates a development plan within the framework of the ambitious project of growth and international expansion in which the producer of fine vegetables and fruits in canned and frozen Peru is immersed. The Peruvian company has more than 27 years of experience cultivating, processing and developing customized solutions for different markets, being present in more than 50 countries on five continents. Ardo and Virú have been collaborating for several years that has considerably facilitated the decision on this operation. From this purchase and sale agreement, Virú will continue to provide logistical support services to Ardo, ensuring the operation and continuity of its commercial activity Spain.

On the other hand, the **Argentine company PTP Group plans to invest 16.5 million euros in the construction of a refrigeration plant** and another for the storage of bulk and general merchandise **in the facilities of La Cabezuela-Puerto Real (Cádiz).** The Argentine company wants to turn the port of Cádiz into its logistics link between Latin America and Europe. The project for the refrigeration plant involves a total investment of 9.6 million euros to be developed in three phases between 2022 and 2027 on a plot of 24,266 m² and that will be used for the refrigeration of fruits and vegetables, as well as the freezing of meats. Likewise, it is contemplated that the plant includes a photovoltaic park to cover its own consumption needs with a generation capacity of 1.35Mw. Regarding the bulk and general merchandise storage plant, it represents an investment of 6.9 million euros, to be developed also in three phases between 2022 and 2026, and will be located on a plot of 39,000 m². The solid bulks that will be stored in this facility are for human consumption or for the production of animal consumption. In addition, the storage and packaging of fertilizers and fertilizers is also planned.

Regarding national companies, **Congelados de Navarra** reported sales of 250 million euros in 2021, 14% more than the previous year, with export accounting for 65% of its production, with a presence in about 70 countries. The company has five plants in Spain (two in Navarra and one in La Rioja, Alicante and Valladolid) and a sixth in Germany Within the framework of its sustainability plan, the company is implementing measures to reduce the use of phytosanitary products, the promotion of crop rotation, the reduction of carbon footprint, bringing productions closer to the different plants and even increasing the volume of organic products. Congelados de Navarra recently joined the Spain Food Valley project led bythe National Center for Technology and Food Safety (CNTA) and which aims to boost the agri-food sector with an investment of about 620 million euros. It is a project in which 58 companies from 16 autonomous communities participate.

As for **new trends**, the news of alimarket.es on the"direct to consumer" platform CrowdFarming, specialized in direct sale to the final consumer of fresh bio products, is very prominent. In addition to reinforcing the technological development of its marketplace and its shipping services software, the company has *landed* in the physical world, through the acquisition of the company Frío Mediterráneo, provider of logistics and storage services and operator of a warehouse of 8,500 m2 in Museros (Valencia).

***The fruit and vegetable sector continues to rise with movements linked to cold logistics.***

# Pescado

## FISH

Numerous have been the news related to the fishing sector during this last quarter. Interesting, first of all, the information of lavozdegalicia.es on the research of several centers dependent on the CSIC that hasreviewed twenty years of movements recorded in the UN trade database and analyzed the trade flows of squid, poplars and octopus. The result, published in *Scientific Reports*, points out that in **Spain the octopus that is consumed comes frozen from Morocco and Mauritania**, whilethe fresh octopus from Spain has its main client in Portugal and Italy. The cuttlefish and squid, on the other hand, arrive from India and the Falklands, although, according to the published work, Brexit can alter the structure and dynamics of the squid trade, led by the Spanish fishing fleet or Spanish capital that operates from the Port of Vigo and generates about 200 million euros.

### Enterprises

In the business field, the **Vigo multinational Profand**, which bought Caladero (a Zaragoza company with 650 workers) from Mercadona in 2019, has closed an agreement to acquire the majority stake in Kefalonia Fisheries, a Greek company whose main asset is four aquaculture farms, a fry breeding area and two packaging plants. Kefalonia Fisheries has a workforce of 150. The operation will allow Profand to boost the production of sea bream and sea bass. In its line of expansion, the company has signed an agreement with the Concello de Cambre to incorporate 200 workers from the municipality to the facilities where frozen and refrigerated cephalopods are processed. According to economiadigital.es, the company has recently been endowed with a board of directors, after the landing of Corporación Financiera Alba, the holding company of the March family.

**Brasmar Group,** a company in the food sector specializing in seafood, has acquired according to foodretail.es most of the capital of the French company Sedisal, a firm specialized in the distribution of refrigerated seafood. With a turnover of about 13 million euros, Sedisal has in the distribution of octopus and refrigerated cod the main areas of specialization, having a strong presence in the French-speaking markets. Brasmar, a company owned by VigentGroup and the private equity company MCH, was founded in 2003, and is currently a benchmark in the

Portuguese food sector of frozen seafood (processing and marketing of cod, smoked and cephalopods). It has industrial units in Portugal, Norway and Spain, with more than 400 employees and its turnover amounted to 241 million euros in 2021.

In the field of acquisitions, we will finally highlight the information of alimarket.es that describes how Inversiones Parafarma was made with 100% of the wholesaler and processor specialized in fresh and frozen seafood **Maresmar**.

As for the results of the year 2021, economiaengalicia.com published last February information related to the company **Congalsa**of The poor man of the caramel (La Coruña). Sales of the company, sadas to those of its Portuguese plant Sulpasteis, ascended to €113 million during 2021, almost 13% more than in 2020. Conglsa, which has increased its workforce by 20%, has carried outnversions in machinery, technology, R + D + i and process improvement worth 3.7 million euros, and pfor 2022 and 2023 an investment is planned additional of eight million euros, four for the expansion of the plant in Portugal and the automation of its production processes, and another four for its smart factory project 4.0.

Regarding the bad news, alimarket.es reported on the liquidation of the Cadiz company **Hermanos Muñoz Petaca**, wholesaler of fish and seafood, and the voluntary contest of **Congelados Troulo**, importer and distributor specialized in octopus and negative cold fish (horeca channel, wholesalers and other processors), a situation that has also affected its subsidiary Congelados Rábade .

The same media echoed the efforts of the companies **Pescados Amaro González and Euroasian Fish** to obtain financing or investorsand continue with their activity. An economic injection that **Noray Seafood** has achieved to increase the capacity to raise sustainable prawns indoors in its facilities in Medina del Campo (Valladolid).

## Investments

The company **Globalimar Europa**, a company specialized in the elaboration, import, commercialization and export of frozen seafood (crustaceans, assorted fish, surimis, cephalopods and bivalves) that it sells under the brands Aligator, Amura and Amatsu, has acquired a warehouse of 11,000 square meters in Llagostera (Girona), after investing seven million euros.

Large refrigerators and seafood processing companies have opted as highlighted by farodevigo.es for **photovoltaic self-consumption** as the main ally to reduce their energy dependence and mitigate the impact of electricity prices. Inrecent months Mascato, Frioya, Frialia, Casa Botas, Fandicosta or Pereira lead this initiative, whose total impact on the reduction of greenhouse gases is estimated at about 1,400 tons of $CO_2$ per year.

## R&D&i

Speaking of investments in technological innovation, **Cabomar Congelados** reported a new aid granted through the Consellería de Mar de Galicia. This investment of 755,000 euros under the Operational Program of the European Maritime and Fisheries Fund (EMFF) 2014-2020, is aimed at a modernization project and technological improvements that the company is carrying out in recent years and that will involve a total investment of 1.5 million euros.

For its part,the **Galician group Pereira** participates in a project of**5G** technology applied to logistics, consisting of a monitoring device, located in the logistics vehicles of food transport, capable of recording the position of these, together with a software system, which collects and sequences the information of these vehicles. The solution allows to know in real time the conditions of the cold chain of your trucks, as well as the delivery time per customer, avoiding delays in deliveries and favoring greater energy efficiency. The project is part of the National 5G Plan, a program for the development of 5G technology pilot projects executed by Red.es.

**Pescanova's** initiative to ensure transparency and traceability along the value chain with the help of the IBM Food Trust platform, a network based on **blockchain technology**, is also novel. Pescanova will follow the GDST (*Global Dialogue on Seafood Traceability*) standards, which allow interoperability between seafood traceability systems, ensuring that key data from each link in the chain is collected and recorded digitally.

***The frozen fish sector has shown great activity linked to business movements and technological investments.***

# Lácteos

## DAIRY

The world of ice cream is also involved in the **boom of plant-based products.** It financialfood.com that **Pink Albatross**, specialized in vegetable ice cream, has recently closed a financing round for a total of 1.2 million euros, reaching in a few months the investment goal that had been proposed. Thestartup has had a *crowdequity* line, with the participation of local investors and investment funds such as Tech Transfer Agrifood. Pink Albatross offers ice cream made with natural and vegetable ingredients, with a range of eight flavors today. With a trajectory of just over two years in the market, in 2021 its turnover has increased by 400% and it has consolidated its distribution by multiplying by four its points of sale. Currently, Pink Albatross is being promoted by Lanzadera, the startup accelerator belonging to Marina de Empresas.

**Vegetable drinks in Spain have a turnover of 298.6 million euros**, thanks to the fact that nine out of ten consumers of vegetable alternatives also incorporate dairy products into their diet. These figures have meant that three large food companies: Capsa Food, Danone and Pascual are reactivating the vegetable beverage business.

For example, theAsturian **Corporación Alimentaria Peñasanta (Capsa)** and the Catalan **Liquats Vegetals** – a specialist in vegetable drinks – have signed an alliance to market new products linked to plant food, in response to new market trends.

For its part, according to eleconomista.es, the French multinational **Danone** has been in charge since february of the direct distribution of vegetable drinks of the Belgian brand Alpro for the Spanish market, which accelerates its transition to a diet with less animal protein.

As for **Pascual**, another major player in this market, there have been news of interest in recent months, highlighting its **partnership with the operator Carreras Grupo Logístico** for its transport and storage operations in Spain. The Aragonese firm will manage the storage and handling of a stock of 8,000 pallets and the distribution of more than 120 million kilos of food produced by the food company to cover all of mainland Spain, Ceuta and Melilla. In addition, it transpired that it is allied with local partners in the Philippines, Morocco, Angola and Central America with the aim of doubling its foreign business by 2025, turning its international strategy around. The family group, which exports its products to 52 markets, will start producing for the first time outside of Spain through *joint ventures*.

With regard to **Carreras**, its main investments seem to be aimed at equipping all its warehouses with cameras prepared to house products between 1º and 8ºC and having suitable vehicles for their distribution. The company is already working on this type of products for Mondelez from the refrigeration facilities of its new warehouse in Seseña (Toledo), with a capacity for 7000 pallets.

As we previously reported, **Grupo Alacant**, Mercadona's ice cream supplier, closed at the end of 2021 an agreement to purchase 100% of the shares of Crestas La Galeta S.A., the firm that owns the Brands Helados Somosierra and Royne. This operation allowed the company to place its turnover in 2021 at €150 M, compared to €136 M in 2020, raising its forecasts to €160 M for the current year. The incorporation of the aforementioned company has also expanded its range of distribution centers, which was previously limited to Mercadona and Lidl.

**Zumosol**, a brand of 100% natural juices with more than 30 years in the market, has decided to diversify its catalog and make the leap to the ice cream market. To this end, it has partnered with the company Helados KTC, a manufacturer of frozen products since 1975 based in Valladolid. As stated by retailactual.com, thecollaboration between Zumosol and KTC is not limited to one brand. Pernigotti, a historic Italian manufacturer of ice cream, hazelnut creams and chocolates, brings its range of premium ice creams to Spain as part of the KTC portfolio. The Pernigotti ice cream portfolio, distributed entirely by KTC in our country, consists of cones, chocolates and frozen mini-chocolates, ice bars and tubs of various sizes. Like the new Zumosol ice creams, the Pernigotti range of Italian ice creams will be available in April, distributed by KTC Ice Cream in supermarkets, hypermarkets and impulse establishments. Similarly, thecompany Artiach, of the Adam Foods group, manufacturer of the Filipino brand, has also decided to enter the world of ice cream with four references from the hand of KTC.

## *A quarter of business agreements in the dairy and plant-based beverage sector linked to refrigeration and freezing.*

# Panadería y bollería

## BAKERY AND PASTRIES

The Spanish Association of the Bakery, Pastry and Pastry Industry held its VIII Reflection Days in February. Experts stressed that the entry of investment funds into the markets**, strong Chinese demand and falling stocks have strained cereal prices**. The importance of the **conflict between Ukraine and Russia** in this market was also put into context. Ukraine exports 40% of the corn that arrives in Spain, andin sunflower oil Ukrainian exports to Spain represent 50% of the total, while those of Russia represent 30%, so this disruption will affect the market in a very important way.

Cinco Días reported in January the results and financial movements of **Europastry**, leader of the frozen dough sector. Its turnover approached 850 million in 2019 in 2021. The company has taken advantage of the context to refinance its debt and has set aside a cushion of €275 million for organic growth and through acquisitions. In fact, the company's history of acquisitions is extensive: in 2016 it bought the Valencian Sualba, between 2017 and 2019 the Galician Ingapan and at the end of 2018 the Portuguese Confetaria Torres signed the acquisition. The company is already present in 80 countries and has 22 production plants and 27 sales offices in America, Asia and Europe.

As for business initiatives, **Panificadora Conquense** is going to invest, according to www.vocesdecuenca.com, 18 million euros in new facilities in the Los Palancares industrial estate (Cuenca). The plant could be operational in autumn 2022 and will mean an increase of more than 60% of its production capacity. **Monbake** has also continued to execute its investment projects, which include, as alimarket.es the start-up of a new robotic logistics warehouse in Noblejas (Toledo) and the expansion and automation of lines in its factory in Aiguaviva (Girona), where the group produces bakery and pastry products. For its part, **Interbread**, within its strategic growth plan, is immersed in the inauguration of its new facilities in the Metropolitan Industrial and Technological Parkof Escúzar (Granada), with an investment of more than 3 million euros that will have a freezing chamber of 1,500 m2, a pastry workshop of 700 m2 and a new office headquarters.

***Tensions in cereal stocks and new investments underway.***


**The Panorama section is dedicated to the changes taking place in the cold storage environment, with an eye on the future.**

**Various advances and technological innovations in intralogistics, traceability, packaging and warehouse management are shown, contributing to the design of amore agile, more resilient and more efficient supply chain.**

**In the environmental landscape, new legal conditions and business initiatives in the world of logistics are reported to meet the objectives of reducing the carbon footprint.**

**The logistics business** landscape **shows significant dynamics and growth. The appearance of new legislative measures convulses the sector. The first quarter of 2022 stands out for the numerous investments and acquisitions in the cold sector**.

# Panorama tecnológico

## TECHNOLOGICAL OVERVIEW

**Designing a more agile, more resilient and more efficient supply chain**, based on understanding and meeting customer expectations to give them a differentiating response, is a strategic element in the transformation of any business. Even more so in a period when supply and demand are unstable and uncertain.

Technological innovation finds in the supply chain a fertile ground for the development of value-added solutions: efficiency increases, reduction of errors, guarantee of traceability and transparency, and a long etc. are contributions that technology is already offering to logistics actors. It highlights elmercantil.com, rightly, the importance in this context of collaboration between actors in terms of technological advances to achieve visibility and optimization of processes in the supply chain that result in benefits for the workforce of large and small companies. Many and very varied are the examples collected by the specialized press.

### Intralogística.

Intralogistics operations can benefit from **advances in robotization and automation**.

Striking is the case of the French **Exotec**, whose Skypod technology involves a coordinated system of robots that can move horizontally and vertically, and that climb the shelves and move the merchandise to the picking area. Each robot can handle loads of up to 30 kg and move through warehouses up to 12 meters high. According to Cinco Días, thecompany also offers an articulated arm capable of moving solid objects of up to 2 kilos and preparing four orders simultaneously. This robot can manually change up to 600 items per hour, automatically picking up products from an inventory container and placing them in other containers ready to ship. Its Astar software synchronizes the articulated arm with the Skypods robots and defines which container should be sent to the picking station. Decathlon, E.Lecrerc, Carrefour, GAP and Monoprix have already applied these solutions in their warehouses.

Autonomous solutions are being implemented at high speed. The **autonomous robot Soto de Magazino** automates flows between areas without the need for an operator to load and unload the containers in question, allowing the handling of containers or boxes up to 60x40 cm and 20 kg, with the possibility of loading ten units before transporting them to their delivery points.

***Figure 1:*** *Robot autonomous Soto de Magazino.*

***Source:*** *supplychainmagazine.fr.*

Developed by the **Polish company WDX**, the automatic loading/unloading system for semi-trailers or sea containers QLoader allows the complete unloading of a semi-trailer in just 10 minutes thanks to metal forks that are deployed inside the truck to extract the complete pallets.

Thefifth generation ofthe Cray X industrial/occupational backing **motorized exoskeleton** from german **Bionic** has just been presented in society. Itis designed to help workers not only lift objects, but also take them to their destination thanks to a new function that gently pushes the user's thighs while walking or climbing stairs. The new Cray X also takes advantage of advances in artificial intelligence technology. Depending on their role and responsibilities, workers can execute thousands of movements in their workplace, providing a wealth of data for the software, which the exoskeleton uses to modifyr and customize the power curve of the actuators. Finally, the device can also act as a portable sensor that acts as an early warning system against incorrect movements and postures.

***Figure 2:*** *State-of-the-art exoskeleton.*

***Fuente:*** *German Bionic.*

## Transparency and traceability.

In the cold chain world, thegrowing demand for better food quality, the growing need to reduce food waste, the growing demand for generic drugs, etc. will drive the **continuous monitoring** market. The high cost of implementing cold chain monitoring solutions is the major factor currently holding back the growth of the market, which includeshardware (such as sensors, data loggers, RFID devices, and telematics and telemetry devices) and network devices that are used in applications ranging from monitoring. from the environment to the transmission of data to a centralized database for further evaluation. For most cold chain applications, hardware accuracy and reliability are critical parameters, and are used to control the temperature of food, pharmaceuticals, chemicals, and other temperature-sensitive products.

As the report *Foodtech in Spain: moving Spanish food system forward* points out, theneed for traceability affects several sectors of agri-food technology, including food, livestock and agriculture. Several Spanish startups are finding solutions to these needs, focusing on different moments of the value chain. For example, **Digianimal** has a scale that can help track animal health and detect disease. Other startups like **FoodXain** provide the actual QR code that can be placed on the finished product label for the consumer to explore the journey. **ASICI** (Asociación Interprofesional del Cerdo Ibérico) **and ANICE** (Asociación de Industrias Cárnicas de España) are playing a great role in the country in terms of meat treatability. In the area of aquaculture, **Acuiplus** is actively applying blockchain technology to track seafood production efficiently.

**Navidul**, informa carrnica.cdecomunicacion.es, has begun the distribution of the first **Iberian pallets with blockchain technology** that will allow the consumer to know the life cycle of the piece that is taken to his home. By scanning the QR included in the vitola, the consumer will be able to access truthful, complete and immutable information offered by all the suppliers involved in the production of the piece, such as the pig's feed, where it has been cured, its weight or the date of preferential consumption.

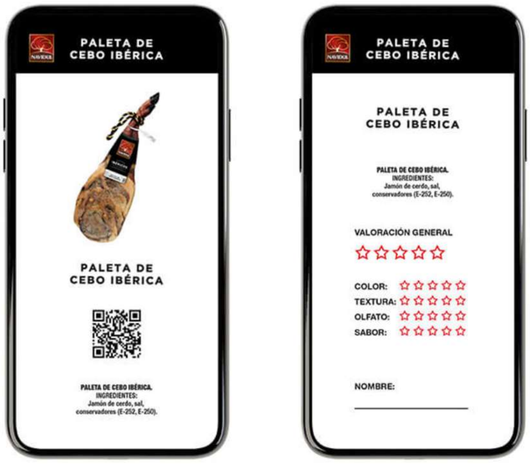



***Figure 3:*** *Blockchain technology for traceability.*

***Source:*** *Navidul.*

The **AN Group** collaborates with Eroski to launch the first **smart labels on its poultry products.** By bringing their mobile device closer to these labels, consumers access a wealth of information about the origin of the food they purchase. The smart labels will be implemented in the packaging of Pollo Campero Eroski Natur, produced by the AN Group. The consumer only needs to bring their mobile phone with NFC (short-range wireless technology) activated to obtain complete information related to the product purchased: thus, they can know the farms where the animals have been raised, access information on animal welfare, have recipe recommendations and even enjoy a virtual reality video in which the different ways of raising birds are explained,  in addition to having access to a survey to make your opinion known.

## Packaging.

**GXO Logistics** has completed the installation of a new automated packaging solution that **customizes the size of the boxes to their contents**, avoiding the expense of materials and thus helping sustainability. The installation at the GXO center in Saint-Vulbas (France) allows the company to automate the entire process of p repairing shipments, increase productivity and reduce costs. It is a 3D packaging solution that can process up to 700 packages per hour; It scans and measures the order in 3D, cuts and folds the carton to create custom packaging, and then weighs, seals and labels the package before redirecting it to the correct carrier. The small size of the boxes, combined with reinforced corners, improves durability and offers ready-to-reach solutions.

### Management.

Control **towers** are becoming widespread as optimal control systems based on the intelligent use of information in real time. As elmercantil.com points out, which gives as an example the pharmaceutical **company Cofares,** the **predictive analysis** of the control towers allows to ensure the traceability of the stock available in warehouses, which facilitates its optimization and the reduction of storage time, as well as the minimization of unnecessary urgent transport and an excess of reverse logistics in case of returns. For this it is necessary to also include the client in the monitoring and follow-up processes.

***Various technological advances and novelties in intralogistics, traceability, packaging and warehouse management are shown that contribute to the design of a more agile, more resilient and more efficient*** supply chain***.***

# Panorama medioambiental

## ENVIRONMENTAL OVERVIEW

Whether out of obligation or devotion, aspects linked to the environment and sustainability are becoming increasingly important in the agendas of companies and organizations. As the AINIA Consumer Barometer highlights, **sustainability is a term that is already established in the consumer's mind**. The purchase decision of products such as fruits, vegetables and vegetables, in addition to other foods, will be increasingly conditioned by the identification of the product with a brand that is respectful of the environment.

To this are added the **legal conditions**. According to eleconomista.es, thelegislative initiatives on sustainability presented by the Government will take a heavy toll on companies in the food sector. The Government's objective **is to reduce the total weight of packaging waste** (by 13% in 2025 and by 15% in 2030, always compared to 2010 data). It also expects that by 2030 all packaging placed on the market will be 100% recyclable and, if possible, reusable. The *Draft Law on Waste and Contaminated Soils* together with the *Draft Royal Decree on Packaging and Packaging Waste* will have an economic impact of more than 2,000 million euros and will put at risk up to 160,000 jobs, according to Mauricio García de Quevedo, general director of the Spanish Federation of Food and Beverage Industries (FIAB).

For its part, theUnion Europea adopts **new road charging rules** to green road transport. On 17 February, the EU adopted new rules on road charging. The new system will improve incentives for more efficient and sustainable road transport. It will phase out time-based vignettes for heavy-duty vehicles in the central trans-European network by 2030, in favour of distance-based ones. It will also introduce eu-wide rules to vary the tariffs for heavy-duty vehicles based on their CO2 emissions. In addition, after a transition period of 4 years, the charging of external costs for air pollution will be mandatory for heavy vehicles, except when it generates an unintentional diversion of traffic.

According to puertosymas.com, **Primafrío** is currently working, within the framework of European projects and consortia, on issues such as electricity diversion, *powertrain*, power generation and other systems thathelp reduce diesel consumption and, consequently, the carbon footprint. Through PrimaVia, a *joint venture* with the railway operator VIIA, they manage 60 weekly refrigerated wagons that are transported from Le Boulou (France) to Bethenburg

(Luxembourg), which represent a ton of $CO_2$ reduction for every 1,000 kilometers traveled, which avoids the emission of 3,200 tons of $CO_2$ per year by the transport of 68,600 tons of product by rail. In parallel, the company, which by2025 already has hydrogen vehicles available, is in the process of achieving the second Lean & Green star.

The **Lean & Green program**, to which we have already referred in previous reports, has achieved according to eleconomista.es that the88 companies adhering to the program achieve an **average saving of 20% in Greenhouse Gas (GHG) emissions derived from their logistics activity** . These data translate into a total saving of 7 million tons of $CO_2$. In the analysis of the measures applied by companies to reduce gases derived from their logistics, the most efficient have been the optimization of internal processes, the use of renewable energies, the commitment to other modes of transport in addition to roads and the renewal of the transport fleet. Lean & Green companies that have opted to redesign their internal processes have achieved a reduction in emissions generated of up to 100%. The use of renewable energies has led to savings of up to 96%, while the commitment to multimodality has led to reductions in the ecological footprint of up to 75%. Finally, the renewal of transport fleets has meant a maximum reduction in emissions generated of 65%. Condis and ElPozo Alimentación are the latest companies incorporated into the program

Another company that **bets on hydrogen** is **bonÁrea**. As highlighted by revistainforetail.com, the company participates in a project entitled "Industrial research of solution for hydrogen propulsion in light and semi-heavy electric vehicles with fuel cell". The main novelty of the project arises from the complete development at the national level of a new type of fuel cell electric vehicle and, therefore, a pioneer in Spain in the implementation of a fuel cell with hydrogen in a goods distribution vehicle. These vehicles convert the hydrogen gas into an electric current within the fuel cell, where this energy will be used to power the electric motor.

The **Vall Companys** agri-food group recently reported that it has been the first Spanish company in the food sector to obtain approval of its emission reduction targets from the *Science Based Targets Initiative* (SBTi) in coherence with the levels required to achieve the goals of the Paris Agreements. The Vall Companys Group foresees an investment of up to 90 million in ten years to be able to reduce its $CO_2$ footprint by 42%, thanks to the generation of renewable energy sources, the contracting of electricity with guarantees of origin, the increase in the energy efficiency of its processes or the renewal of its fleet of vehicles, among other measures.

***New legal conditions and business initiatives in the world of logistics are reported to meet the objectives of reducing the carbon footprint.***

Panorama empresarial

**BUSINESS OVERVIEW**

## General dynamics.

According to data from the employer UNO, logistics in Spain moved around 725 million shipments during the past 2021, 6% more than in 2020. It is expected that **the logistics sector will continue to grow significantly during 2022**, thanks to the push of some segments such as supermarkets and e-c ommerce. And this despite the complexity of the shortage of supplies, the problems in maritime trade, the lack of drivers and the increase in the price of energy and fuels.

In line with these figures, **the sector reached a national record until December 2021** with 2,716,000 m2 of logistics contracting in Valencia, Zaragoza, Seville, Malaga and Bilbao, Central Zone and Catalonia. Logisticaprofesional.com figure between January and December 2021 at around 2,200 million euros, which represents an increase of 53% compared to the volume registered in 2020. Thus, Goldman Sachs Asset Management has launched in 2021 a new platform called Newdock to operate in the markets of Spain and Portugal. The company aims to invest more than 1,000 million euros over the next three years, and already has a portfolio of seven projects in Spain, in different *prime* areas, for the development of half a million square meters of gross leasable area with an initial investment of 400 million euros.

The logistics sector therefore offers remarkable growth prospects. However, and despite showing a **dynamic of job creation above the economy in general**, the VI Study of Employment Trends and Logistics Talent of the Logistics Forum and ManpowerGroup highlights that this is an unattractive area for professionals. The report, analyzed by financialfood.es, reveals that the 10 most demanded and difficult to cover profiles are: professional drivers, traffic managers, logistics project engineers, truck drivers and warehouse personnel, *supply chain* directors, commercial and business development directors, logistics managers, business intelligence experts and fleet managers. Theageing of the workforce and the very low participation of young people between 18 and 25 years old, which does not reach 5%, are additional problems that the sector will have to solve in the short term to face its challenges.

The current situation is causing **many companies to change their paradigms.** Policies as well implemented as *just in time* and zero inventory policies are giving way to ***just-in-case***

**approaches.** Many companies are considering increasing their stocks for greater long-term security. Puertosymas.com reports that, according to a survey of business leaders, 47% plan to increase the inventory of essential products to increase the resilience of supply chains. The maintenance of higher levels of stocks in the country will end up generating a greater logistical demand, which is likely to be concentrated in the sectors linked to consumption, and which will also end up having an impact on the growth in demand for cold storage facilities.

## Legislative.

The most striking news of recent months in the **legal environment** has been the approval on March 1 ofthe ***Royal Decree-Law on Measures to Improve the Sustainability of Road Freight Transport and the Operation of the Logistics Chain and transposition of Directive (EU) 2020/1057, of July 15, 202****0* , laying down specific rules with regard to Directive 96/71/EC and Directive 2014/67/EU for the posting of drivers in the road transport sector. The essential objective of the Royal Decree-Law is to rebalance the asymmetries that currently exist between the actors in the road freight transport sector, to improve their position and competitiveness and to guarantee adequate working conditions and social protection for drivers.

The measures approved by the Royal Decree-Law related to the **transport service** include:

- The general prohibition that the driver carries out the loading and unloading of the merchandise and supports in vehicles greater than 7.5 tons, allowing specific exceptions included in the text itself.
- The reduction of the waiting time from which the carrier will be entitled to compensation when loading or unloading, from the current two hours to one hour, also including a provision related to the calculation of compensation to the carrier for damages caused that imply the paralysis of the vehicle.
- The mandatory revision of the transport price in the face of the variation in the price of fuel from the moment of contracting until the effective realization of the transport, linked to the indices that are published on the Mitma website.
- The incorporation of the sanctioning regime linked to compliance with the mobility package approved by the Community Regulation in terms of driving and rest times and "return home of the vehicle" when making international transport
- The reinforcement of mitma's inspection means with the means of the Public Administrations to fight against unfair competition in the sector.

It also includes another series of **measures linked to improving the efficiency of the sector and its environmental sustainability**, specifically, the need to modify, within 9 months of the approval of the Royal Decree-Law, certain aspects of the regulations of masses and dimensions, in order to:

- Simplify bureaucratic requirements for the use of "megatrailers" and "duotrailers".
- Extend for certain highly valued types of transport with special needs the maximum height allowed to 4.5 meters.
- Increase the areas in which the 44 tons can be used, also with a very specific approach.

The **reactions** have not been long in coming, and they have been of very different fur. The Royal Decree Law on Transport approved by the Council of Ministers will have, in the opinion of AECOC - Business Association that brings together more than 32,000 transport user companies serious consequences for the whole economy of our country and will not solve the basic problems of road freight transport. Comisiones Obreras has also lashed out at the decree law because it does not improve the working conditions of professional drivers, since it has only prohibited the loading and unloading of trucks over 7.5 tons. On the contrary, the Department of Goods of the National Road Transport Committee (CNTC) appreciates the text.

## Business investments.

In the field of transport, the recent movement of **Maersk** is also interesting, which has launched a **new refrigerated rail service between Andalusia and Galicia**. The new *reefer* connection has a transit time of 1 day and 12 hours, with departure from the port of Algeciras and arrival at the port of Marín every Friday at noon. This new train service allows weekend deliveries and distribution to final retailers. Representatives of Grupo Ibérica de Congelados, S.A. have expressed their satisfaction with this initiative. Maersk launches this new service with a weekly frequency from Wednesday to Friday, but they hope to be able to expand the service in response to the growing demand for rail means of transport.

With regard to **frozen products**, frozenfoodeurope.com quantified, based on information from the consultancy IRI, sales during 2021 at USD 66.4 billion, an increase of 1% compared to the previous year. Mid-March 2020 saw a 94% increase in frozen foods for obvious pandemic-related reasons: convenience, shelf life and ease of preparation. New consumers found in frozen dishes new options that have facilitated sustainable growth of the category ever since. Natural, organic and high-quality ingredients are the future of frozen, with new brands of frozen products offering ethnic, premium and healthy options. With regard to frozen food products, and according to the report *Frozen food market in Europe by product and geography: forecast and analysis 2021-2025* of Technavio (recently updated) the **commitment to premium products** is one of the trends that is gaining ground in Europe. Several market players are introducing innovative and premium products to take advantage of this potential market. With a 75% increase in frozen food sales online, current studies show that today's frozen foods compete with fresh foods, to the point that more than 50% of millennials think frozen food is equal to or better than fresh.

Good proof of these numbers is the Spanish frozen food chain **La Sirena**, which closed 2021 culminating its Strategic Plan with the opening of twelve new stores. With these new openings, the company will reach 271 stores spread throughout the national territory. One of the pillars of the company is to offer innovative products. The chain has launched throughout this year different product ranges, such as *plant based* products in collaboration with companies such as Heura, Zyrcular Foods or Flax & Kale.

Also interesting is the movement of **Alcampo**, which announced in February has taken a step further in its offer of bulk products, including a new range of frozen products such as fish, vegetables or fruits, among others, available in an assisted service located next to the renovated self-service hoppers. This project of expansion of offer and renovation of spaces for bulk that is already a reality in the stores of La Laguna and Telde (Canary Islands), Vaguada and Fuenlabrada (Madrid), and Palma (Balearic Islands)

It is not surprising, therefore, the intense activity that the sector has experienced during the last months. Elmercantil.com collected as the **logistics operator Transitex,** of the Yilport group, completed in February the construction of its first cold store. With an investment of two million euros, the facility is located within the logistics platform of Elvas (Portugal) and has a total of 2,257 square meters, of which 1,834 square meters are cold rooms.

**Vegalsa-Eroski** reported the completion of the **new fresh logistics platform in Sigüeiro** (A Coruña). With a total area of 14,000 m2 dedicated entirely to fresh produce, it has the capacity to process some 223,000 pallets of fruit, 65,000 of charcuterie and 70,500 of dairy products per year. Once it is launched, the current logistics platforms (14,000 m2) that the company has in A Coruña (polygon of A Grela and Pocomaco) dedicated to these fresh products will specialize only in the supply of meat, fish and reshipments, as well as the processed meat, which will serve the entire network stores. The platform has a transcritical $CO_2$ cooling system as a substitute for Freon, refrigeration panels with a very low rate of thermal transmission; interior pavement with thermal insulation which will directly affect lower energy consumption to cool the volume of the warehouse; a heat recovery system of the refrigeration plant as support for the DHW circuit; loading points formed by an innovative system of platforms hydraulics and shelters to avoid breaks by thermal bridge with the outside at times of loading / unloading avoiding work to the refrigeration plant; photovoltaic panels for the use of DHW and LED lighting to reduce energy expenditure.

The **company GLACIARR**, belonging to the Raimundo Rodriguez business group, dedicated to the rental of pallet holes in negative cold, signed at the end of 2021 a contract for the lease of a warehouse in the Fahala de Cártama logistics park (Málaga). The facilities will have an area of more than 5,300 m², of which 4,000 m2 correspond to a chamber with negative cold storage capacity of up to 10,600 holes. The warehouse is scheduled to be commissioned in the second half of 2022.

## Acquisitions and results of companies.

With regard to companies in the sector of financialexploitation, logisticsand distribution, diariodetransporte.com reports that last January the *Autorité de la Concurrence* francesa has authorized the **unconditional acquisition of the refrigerated transport group TMF by the service provider Olano and the network of the Primever Group** belonging to the Satar Group. The carrier, which employs 500 people and has 250 refrigerated trucks, had been the subject of an acquisition project by the 3PL based in San Juan de Luz and the transport and logistics network specialized in fruits and vegetables, jointly controlled by Satar Investissements and the Stef group (40%). More recently the same media reported that Olano has incorporated ten Scania tractors to LNG to its fleet, which are added to the ten tractors of the same brand with CNG engines that already operate in their bases. The ten tractors with LNG engines, have a Scania six-cylinder engine and 13 liters, with a power of 410 hp, withEGR technology, a Highline cabin with deflector, have the options of night and day air conditioning and autonomous heating. With the alliances that the group has signed with LNG distributors, the trucks will be able to refuel liquefied gas throughout France and at the Olano base in the town of Aurillac, where the group has installed a gas station.

**STEF**, a specialist in temperature-controlled transport and logistics of food products, **announced a turnover of 3,500 million euros in 2021**, 11.5% more than the previous period. Internationally, the group's six countries experienced a sustained growth rate, with double-digit turnover. In 2021, stef's net turnover in the Iberian Peninsula corresponding to logistics activities stood at 309.4 million euros, representing a 12.3% increase compared to the previous year. The company highlights the promotion of solutions for the Retail sector, as well as the dynamism of operations for manufacturers of frozen and refrigerated products, while the volumes of Foodservice actors are even more moderately impacted by the health crisis.

In January, STEF Iberia announced the **acquisition of Enaboy Castilla's activities**. This operation allows STEF to strengthen its transport network of refrigerated and frozen food products in the region of Castilla y León with three new centers in Valladolid, Salamanca and Benavente, in addition to the 21 existing platforms. And, at the end of February, the company began the construction of its new logistics platform in Malaga located on a plot of 12,000 m2 in the Fahala industrial estate of Cártama. The facility will have a freezer chamber at a temperature of -25ºC and 40,000 m3 in the first phase, and 80,000 m3 in the second, and will be able to store around 6,500 pallets, and in the second more than 14,500. Inaddition, it will have a cooled dock at a temperature of 2 and 4 degrees with 12 docks for loading and unloading operations. The company alsocontemplates the expansion of its logistics platform in Alcalá de Henares (Madrid) during this year 2022, although more details about this action have not yet been made public.

For its part, **Lineage Logstics** has continued its expansion during the first quarter of 2022. In January, the company announced the **acquisition of Avedore**, following a series of acquisitions in Denmark and Norway. Lineage Logistics entered the Nordic market in 2020 and has since acquired in the area Claus Sørensen, a major cold storage operator in Denmark, Lundsøe Køl & Frys A/S with cold storage facilities in Northern Jutland and in Aarhus, Super Frost Sjælland ApS and Coldstar ApS.

Almost simultaneously, the company announced the **acquisition of Van Tuyl Logistics, H&S Coldstores and Frigocare Rotterdam BV**. These transactions will increase Lineage's presence in the Netherlands by more than 250,000 cubic meters of capacity. Van Tuyl Logistics is a Dutch temperature-controlled logistics provider based in Gameren that offers refrigerated and frozen transport, employing a fleet of 60 trucks and 90 trailers with its own repair station, as well as storage services for 30,000 pallets at different temperatures, and a real estate holding division. Headquartered in Beneden-Leeuwen, the Netherlands, H&S Coldstores provides end-to-end supply chain services, including transportation, warehousing, customs, production, processing, laboratory testing, and packaging solutions. H&S Group also offers a pan-European network of more than 250 private and outsourced vehicles, and more than 1500 tank units for the liquid food industry. Dutch H&S Coldstores' facilities in Elst and Tiel will move to a new location in a newly built facility, closer to other existing facilities in Beneden-Leeuwen. This new cold room near the port of Rotterdam will be operational by mid-2022, meets the highest LEED/BREEAM status and will use solar energy. Finally, Lineage also announced the acquisition of the Dutch facilities of Frigocare Rotterdam BV, a company specialized in handling frozen fish imports mainly from the North Atlantic and Asia to the Port of Rotterdam. Frigocare Rotterdam BV is located near an existing Lineage facility in the same port and will add 15,000 pallet positions in its 20,000 square metre warehouses to Lineage's operations in Rotterdam.

At the close of this report, it was announced on March 21 **the purchase of 50% less one share of Primafrío Corporación by the North American investment fund Apollo Global Management**, one of the largest venture capital managers in the world. The founders and owners of Primafrio, brothers Juan and José Esteban Conesa, continue to maintain control by holding the remaining shares. Primafrio, a Murcian-based company dedicated to the road transport of temperature-controlled fruit and vegetable products, founded in 2007, has 45 logistics centers in 25 countries in Europe and operates a fleet of more than 2,300 vehicles. Its sales in 2021 were 506 million euros, an increase of 10.5% over the previous year. Its compound annual growth rate is 10.8% since 2018. The year 2020 presented a net operating result of 17.8%, with a net profit of 64 million euros and an EBITDA of 81 million. Germany, Spain and the United Kingdom account for the majority of revenues per cargo destination, with 35%, 25% and 9%, respectively.

It has transpired that the amount of the operation has been about 700 million euros. The Murcian group has been valued at 1,500 million euros, including debt. Taking into account that Primafrio's debt is around 150 million euros, the disbursement by the fund amounts to approximately 675 million euros. The company Primafrio had already tried its IPO to look for investors, where it expected to place 35 million shares, equivalent to 25% of the capital, with the aim of reaching a market capitalization of between 1,300 and 1,700 million euros, but suspended it in mid-June 2021. The operation is still pending approval by the relevant regulatory body, so its closure is not expected until mid-2022. The sale was the result of an international bid in which other funds such as Brookfield, Blackstone or QIC participated.

Primafrio seeks through its partnership with Apollo, which is based in New York, to jump into the U.S. and Canadian market, as well as boost its current business in the Mediterranean corridor and the region of Germany, Austria and Switzerland.


## *SPECIAL COMPETITIVE INTELLIGENCE*

***The logistics landscape shows an important dynamic and growth. The appearance of new legislative measures convulses the sector. The first quarter of 2022 has been highlighted by the announcement of numerous business investments and acquisitions in the cold logistics sector.***

**The special section of Competitive Intelligence is dedicated this quarter to an analysis of the cost of electricity in Spain and Europe in 2021 and an estimate of the factors that may influence the evolution of the price of electricity.**

**It is accompanied by an assessment of its effects on Spanish refrigeration farms and the need to have tax exemption measures, like other industrial and agricultural sectors, to face the excessive rise in electricity.**

# The cost of electricity: evolution 2021 and estimates 2022

## Conditioning factors of the estimation of the price of electricity.

Making a prospective of the evolution of the price of a good in the market is always difficult and risky, especially in cases, such as electricity, where **the costs for the final consumer depend on the interaction of factors outside production and marketing and the combined action of various economic and political agents**.

The price of electricity is mainly conditioned by the cost of acquiring the raw materials necessary for its generation in an **international market subject to continuous variations**, even daily, caused by international events and very sensitive to the evolution of the interests and geostrategic capacities of States and large transnational corporations in the energy sector.

To this must be added that **the purchase of energy is an important source of tax revenue**, which has two consequences. Firstly, States have an important capacity to intervene to indirectly regulate prices, modifying the taxes levied on the sale and consumption of different energies. And, secondly, the rise in energy prices has a direct impact on a higher revenue for the State, at least in the short term, which does not stimulate the reduction of prices, provided that an excessive rise does not mean a paralysis of economic activity.

**The war between Russia and Ukraine** that began on February 24, 2022, with its profound impact on the price of oil and gas, **has crumbled all the forecasts** that analysts and expert organizations in the field had made in the previous months **and is reconfiguring future scenarios** on energy with the intervention of various factors.

- **In the short term**, the price of energy will be very sensitive to the possibility of continuing **the war without a clear horizon of completion** after a month of fighting and, above all, to **the evolution of the conflict that has been generated between Russia and the European Union and NATO** towards détente or towards the aggravation of mutual political and economic sanctions. In addition, **the responses** of the European and Spanish **political authorities** to contain or compensate for the rise in energy prices, both fuel and electricity, are still in the process of preparation and political discussion.
- **In the medium term,** the new geostrategic context has reopened in the European Union **three debates on energy**: the speed of the **decarbonization** of the economy; the urgency of replacing fossil fuels with **electricity of "green origin" for logistics activity**, household consumption and the use of private vehicles; and, above all, the

consideration of **nuclear energy** as a source to be replaced or promoted. All this is presided over by the growing will on the part of European countries to promote policies aimed at increasing their **energy self-sufficiency**.

- **In the medium-long term,** the emergence of new geostrategic alliances that can have their impact on the demand and supply of fossil energy and on the commitment and dominance of alternative sources is appreciated. The **reconfiguration of the international energy market** will have a very direct impact on the energy policies of the European Union and, therefore, on the price of electricity for industry. In a context of **crisis of European integration policy**, we will also have to be attentive to how far the various European States will want or can go in the adoption of particular measures in their territories and in the responses to price increases, taking into account the narrow margin left by common European regulations.

In view of the above, the estimates of the price of electricity for the remainder of the year 2022 in Spain, must take into account **the high uncertainty and provisionality that surrounds everything related to the price of energy at this** time. Therefore, it is convenient to identify and monitor **the critical factors** that will most directly influence in the very short term in the evolution of the cost of the electricity bill, throughout this year 2022; among them the following four stand out:

1. **European climate and energy** policy, in particular measures and incentives to reduce dependence on fossil fuels and accelerate energy savings, in a context of rising oil prices.
2. **The evolution of raw materials in the production of electricity**, in terms of volume, cost and diversification of sources of supply, **and their weight in the setting of the European reference price** for electricity.
3. **The European Union's ability to adopt common** measures related to the rise in fuel and electricity costs and their taxation, in the context of the evolution of the war in Ukraine and the sanctions against Russia and their effect on the supply and price of oil and gas.
4. **The Spanish economic and fiscal measures** related to the price of fuels and electricity, promised by the Government by the end of March.

The factors always act on a strategic context and a conjunctural situation, so it is pertinent to carry out before its analysis a balance of the current state of the cost of electrical energy.

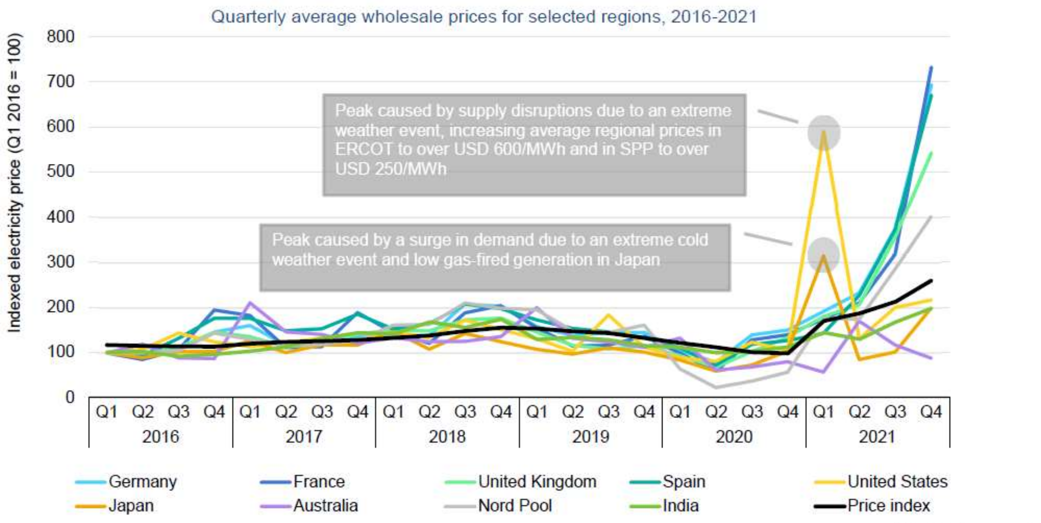
## The cost of electricity in Europe in 2021.

What situation do you start from?

**In 2021, global electricity demand grew by more than 6 percent**, the highest growth rate since 2010, according to the International Energy *Agency's Electricity Market Report* , published in January 2022. The International Energy Agency (IEA) is an autonomous OECD body that advises Member States on energy policy.

This increase was due to the combination of the recovery in economic activity with a colder winter and a warmer summer. The rebound in overall energy demand strained coal and natural gas supply chains, pushing up wholesale electricity prices: despite the growth of renewable energy sources, electricity generation from coal and gas reached record levels.

In Europe, the combination of increased demand for fossil fuels with supply constraints during 2021 resulted in energy shortages and high prices. Due to particularly high gas prices and its 20% share of electricity generation, **average wholesale electricity** prices **increased from the average price of the five-year period 2016-20 by 64%.** Electricity prices in the **fourth quarter of 2021 were even three to more than four times higher than** the average of that five years in France, Germany, Spain and the United Kingdom.






Notes: Price index aggregates the wholesale electricity price changes across the depicted regions. It is calculated as the demand-weighted rolling average of the respective current and previous three-quarter indexed prices of the depicted wholesale electricity markets. The prices for Australia and the United States are calculated as the demand-weighted average of all the regional markets.

Sources: IEA analysis using data from RTE (France) and Red Eléctrica (Spain) – both accessed via the ENTSO-E Transparency Platform; Bundesnetzagentur (2021), SMARD.de; Elexon (2021), Electricity data summary; AEMO (2021), Aggregated price and demand data; AER (2021), Wholesale statistics; EIA (2022), Short-Term Energy Outlook January 2022; Nordpool (2021), Historical Market Data; IEX (2021), Area Prices. Latest update: 12 January 2022.

***Figure 14:*** *Evolution of average wholesale electricity prices, 2016-2021.*

***Source****:* International Energy Agency, January 2022.

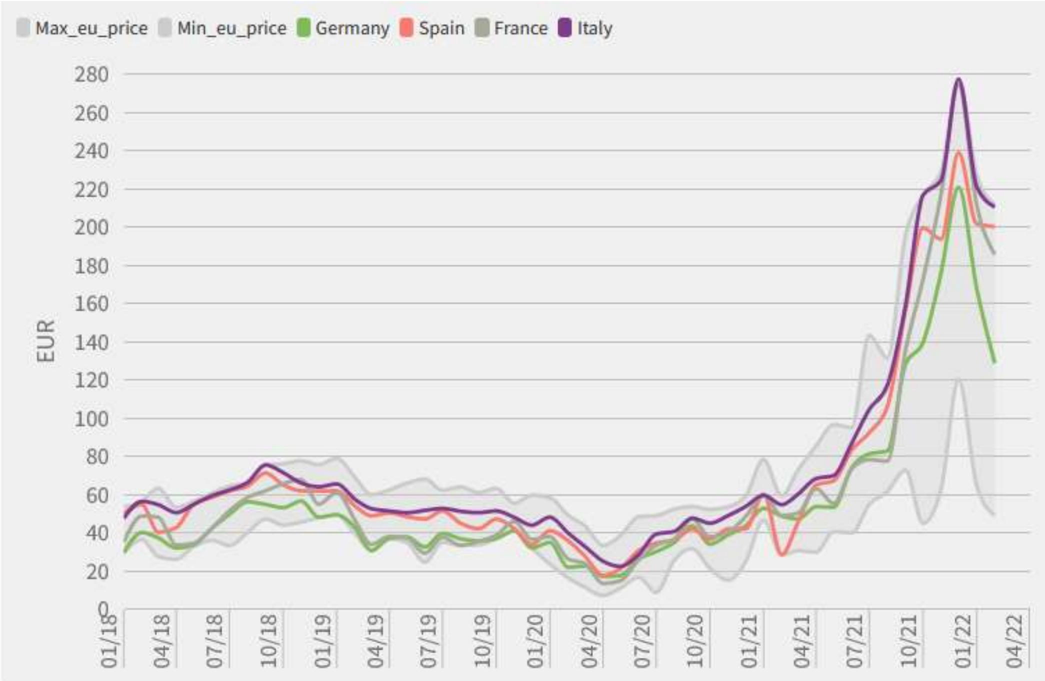



***Figure 15:*** *Average electricity wholesalers in Germany, Spain, France and Italy, 2018-22.*

***Fuente****: BERM.*

The **price of oil** set by the Organization of the Petroleum Exporting Countries (OPEC) grew significantly and steadily throughout 2021: from an average barrel of crude oil of € 44.68 in January it went to € 65.79 in December, with the January price being the lowest of the year, and having reached € 70.74 in October and € 70.39 in November; that is, the cost of oil had **increased by 47.25% at the end of 2021 compared to the beginning of the year**.

Oil and gas prices have led **to a return to coal**. Coal's share of electricity production had declined by 36% in the United States and 38% in Europe during 2017-20. However, according to IEA estimates, coal-fired electricity generation in 2021 grew by 19% in the United States and in Europe by 11% compared to 2020. The ability to switch between fuels is an indicator of the resilience of an electric power production system, but looking back at coal also means slowing down the process of decarbonization of the economy due to market pressure, unless coal consumption is reduced even more than expected in the coming years to offset the carbon overrun of 2021.

## The average daily price of electricity in Spain in 2021.

**The weighted average price of the daily electricity production market in Spain** was €48.33/MWh in 2019, €34.79/MWh in 2020 and €68.46/MWh during the first eight months of 2021, according to the latest *Electricity Indicators Bulletin,* published on October 7, 2021, by the *National Commission of Markets and Competition* (CNMC), body that supervises the functioning of the electricity market.

The weighted average price of the daily electricity production market in Spain was €106.17/MWh in August 2021, with a variation rate of 14.7% over the previous month and an increase of 188.4% over the same month of 2020. **As of August 31, the average cost of electricity throughout 2021 was already 96.8% higher than the average annual cost of 2020.**

In the last four months of 2021, not only did this upward trend that began in January slow down, but it also took on greater strength. On October 7, the average price reached €288.53/MWh and on December 23 it marked its historical maximum with €383.67/MWh, according to the *Iberian Electricity Market Operator* (Omie).

As a result of this continuous rise, **the average daily price of electricity in the Spanish wholesale market in 2021 was the highest in history: €111.9/MWh, more than triple that of 2020**.

In line with the evolution of electricity auctions, the average annual final price of electricity in Spain has not stopped growing in the consumer market either. According to *Red Eléctrica de España,* the operator that guarantees the operation of the electricity supply system, the average price in the last five years was as follows: €60.55 in 2017, €64.37 in 2018, €53.41 in 2019, €40.3 in 2020 and €118.66 in 2021. In summary, **the average price of electricity for the final consumer in 2021 was three times higher than the previous year.**

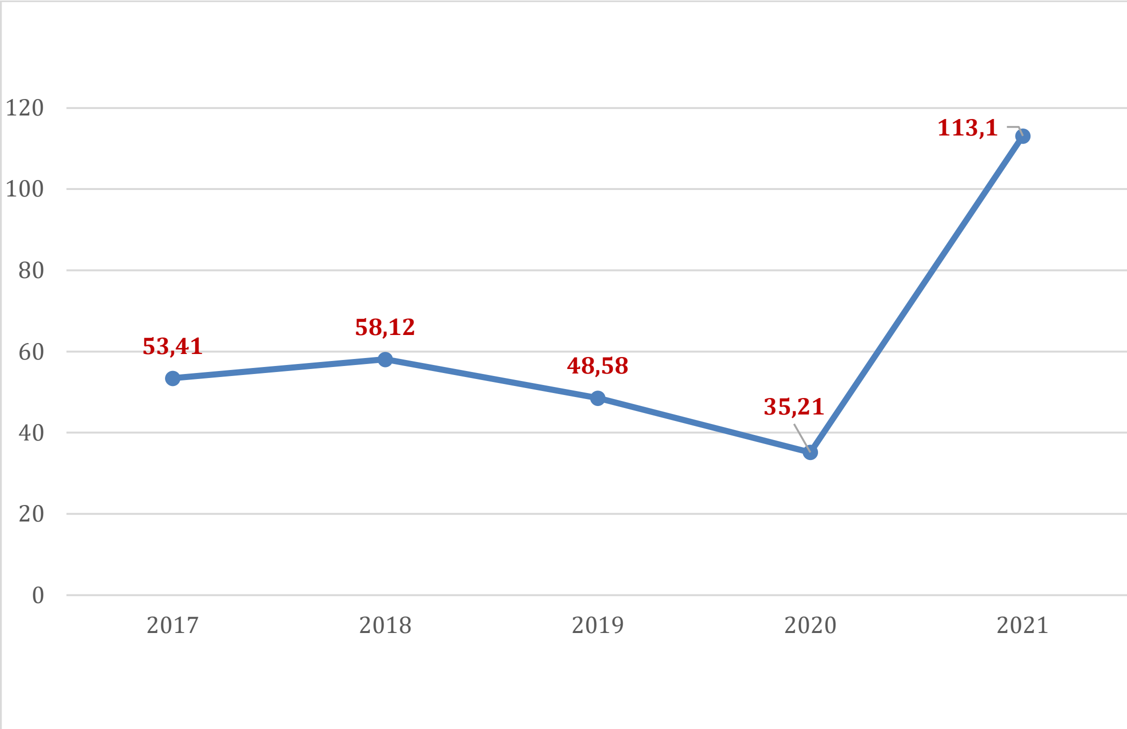



***Figure 16:*** *Average annual final daily price of electricity in Spain, 2017-2021 €/MWh.*

***Source****: Own elaboration based on data from Red Eléctrica de España.*

**The price of electricity soared especially in the last four months of 2021**, with values well above the annual average: € 160.76 in September, € 209.56 in October, € 203.85 in November and € 252.13 in December.

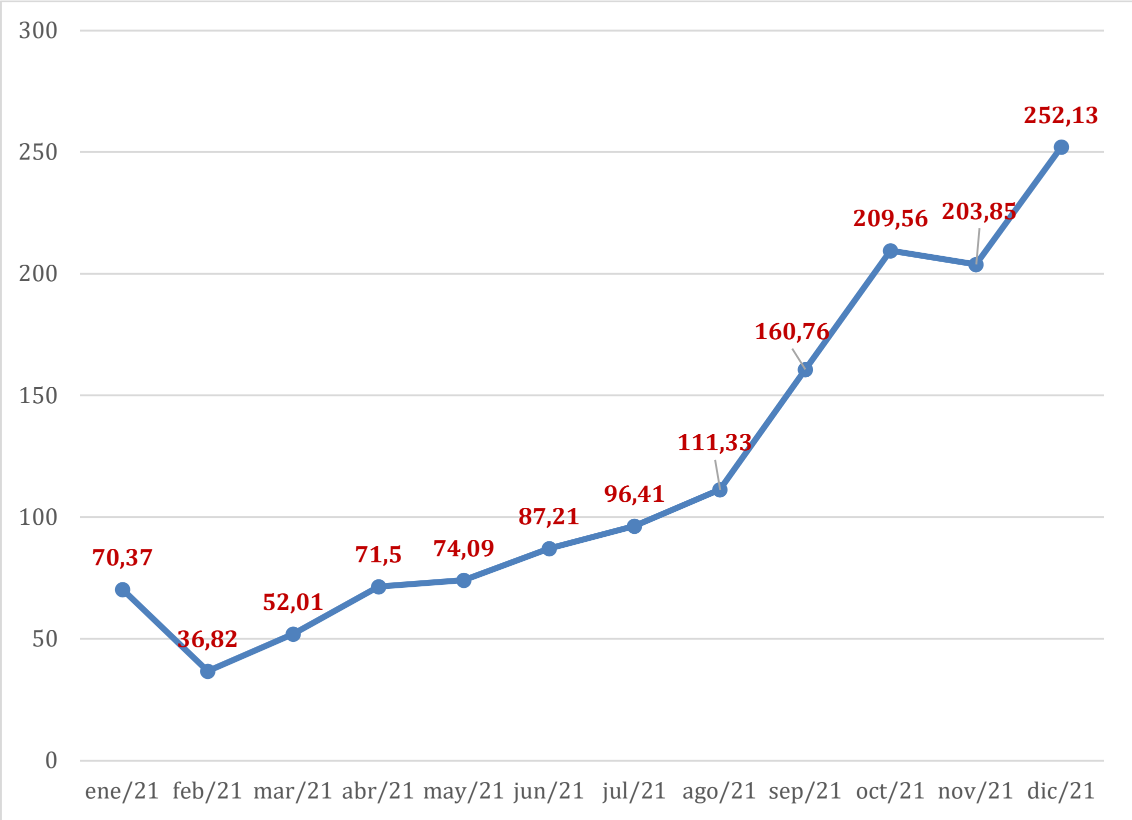



***Figure 17:*** *Monthly final average daily price of electricity in Spain, 2021 €/MWh.*

***Source****: Own elaboration based on data from Red Eléctrica de España.*

## The influence of climate and energy policies.

States are increasingly focused on addressing the threat of climate change caused by human action, especially by emissions into the atmosphere, so climate policies are an element that directly influence the evolution of the electricity sector in the short, medium and long term. **A central component of current climate policies around the world is the decarbonisation** of economic activity in general and electricity generation in particular.

An important indication of a state's climate policy is each country's nationally determined contribution (NDC) under the Paris Agreement, signed on 22 April 2016 by members of the United Nations.  In line with that agreement, **governments set national targets and policies for greenhouse gas** (GHG) mitigation with a time horizon of mostly 10 years. Some NDCs include components in these policies conditional on receiving international technical, financial and capacity-building support. In some cases, national policies are more ambitious than policies reflected in the first round of NDCs submitted by countries since 2015, while in others national policies appear insufficient to meet NDC objectives.

**The new NDCs submitted from 24 November 2021** include more ambitious GHG reduction targets compared to the previous period by countries such as the United States (50-52% reduction target for 2030, compared to the previous 26-28% by 2025, compared to 2005 levels) or Japan (improved target of 46% in 2030 compared to 2013 levels, compared to 26% previously). China also presented an updated NDC, which reflects new climate mitigation targets announced in 2020, such as peaking emissions by 2030 and achieving carbon neutrality by 2060; while the target of reducing emissions intensity per unit of GDP by 2030 increased from 60-65% to more than 65% compared to 2005.

The **European Union** had already set a GHG reduction of 55% compared to 1990; which requires an estimated mobilization of an estimated 180,000 million euros of additional annual investments. By 2030, a 61% reduction in emissions is proposed compared to 2005 levels, compared to the 43% previously set. In addition, the European Union and 18 other countries have legislated to achieve a net-zero emissions target by 2050 or earlier, covering more than 15% of global energy-related $CO_2$ emissions in 2019. The European will to accelerate the energy disconnection with carbon is evident, and not only for environmental reasons, but also for economic reasons and geopolitical independence as has been manifested again in the statements of European leaders in favor of renewable energies after the new rise in prices caused by the war in Ukraine.

**The power sector is a central element of all NDCs**. As stated in the 2021 NDC synthesis report of the *United Nations Framework Convention on Climate Change* (UNFCCC), by 12 October 2021, the 165 most recent NDCs available, representing 192 parties, affect the electricity sector. These NDCs covered 94% of total global GHG emissions in 2019. Of all NDCs, 86% cite targets for higher proportions of renewable energy generation by 2030. Long-term strategies aim to generate certainty for investment in mitigation, including in the electricity sector.

As of 24 November 2021, 45 countries and the European Union have communicated long-term measures to the UNFCCC, covering more than 65% of global energy-related $CO_2$ emissions in 2019. All these commitments also cover the electricity sector. Within the overall targets for net zero carbon dioxide, some countries announced that their electricity sector will be zero netor sooner or in 2030, such as Norway, which has already reached it, Denmark (by 2027) and Austria (by 2030). The United States, New Zealand (both by 2035) and Germany (by 2045) have set subsequent target dates.

**Spain** is one of the few countries, specifically eight worldwide, that have their commitment to net zero emissions reflected in a law, *Law 7/2021, of May 20, on climate change and energy* *transition*. According to this standard, the emissions of the Spanish economy as a whole in 2030 must be reduced by at least 23% compared to 1990 and climate neutrality must be achieved **by 2050 at the latest**. In addition, by 2030 a penetration of renewable energies in final energy consumption of at least 42% must be achieved in Spain; an electricity system with at least 74% generation from renewable energy: and improving energy efficiency by reducing primary energy consumption by at least 39.5%.

The success of the measures in favour of decarbonisation also finds a favourable context with the forecast of a **scenario of stagnation in the demand for electricity in Europe**, after the strong rebound of 2021 and 2022, according to the IEA. Obviously, the return to pre-pandemic levels of demand should act in favour of a decrease in electricity prices.

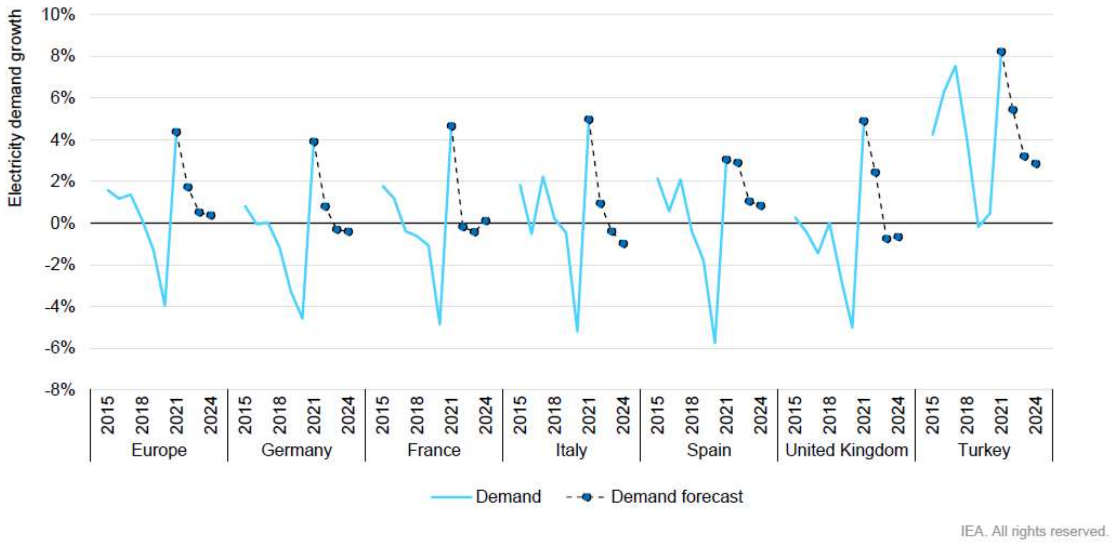



***Figure 18:*** *Development and expectations of electricity demand in Europe, 2015-2024.*

***Source****: International Energy Agency, January 2022.*

## Forecast of the evolution of electricity generating materials for 2022-24.

The forecasts for the 2022-24 triennium are for **an average annual growth in global electricity demand of 2.7%,** which would be covered by the increase in renewables. However, high energy prices, the evolution of the Covid-19 pandemic and international war conflicts add ample uncertainty to these figures.

The graph below shows that, regardless of the evolution of consumption, the growth in electricity demand **will be met globally mainly by increasing production from renewable**

**sources**. Renewables grew by 463 TWh (terawatt hours, equivalent to one trillion watt-hours) in 2021 and an increase of 778 TWh is forecast for 2022, 625 TWh for 2023 and 592 TWh for 2024 to meet growing demand. However, it will still be necessary to increase generation through gas and coal during the years 2022 and 2023, reversing the downward trend of recent years, and of nuclear energy in 2024. The production of electricity through gas will remain in 2022 at the same rate as the previous two years, but an increase of 145 TWh is expected for 2023. As for nuclear energy, growth is forecast to increase by 66 TWh by 2024.

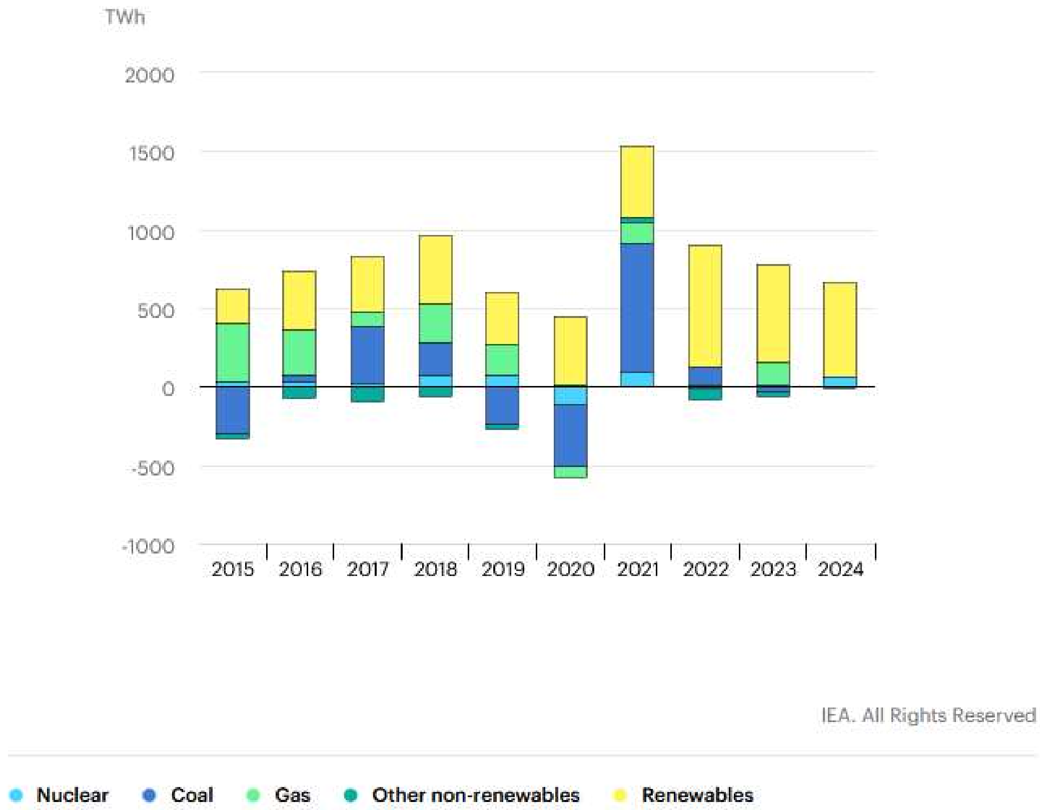



***Figure 19:*** *Changes in electricity generation globally, 2015-24.*

***Source****: International Energy Agency, January 2022.*

According to the IEA, annual additions to global renewable electricity capacity are expected to average around 305 GW per year between 2021 and 2026, an acceleration of almost 60% from the expansion of renewables over the past five years. But it is also possible, with the right political stimuli and a horizon of rising oil prices, that the process accelerates even more, reaching an average of 380 GW for the five years started in 2021. However, even the rapid pace would not allow the net zero balance to be met by 2050, since to achieve that goal growth would have to be 80% faster than in the accelerated case.

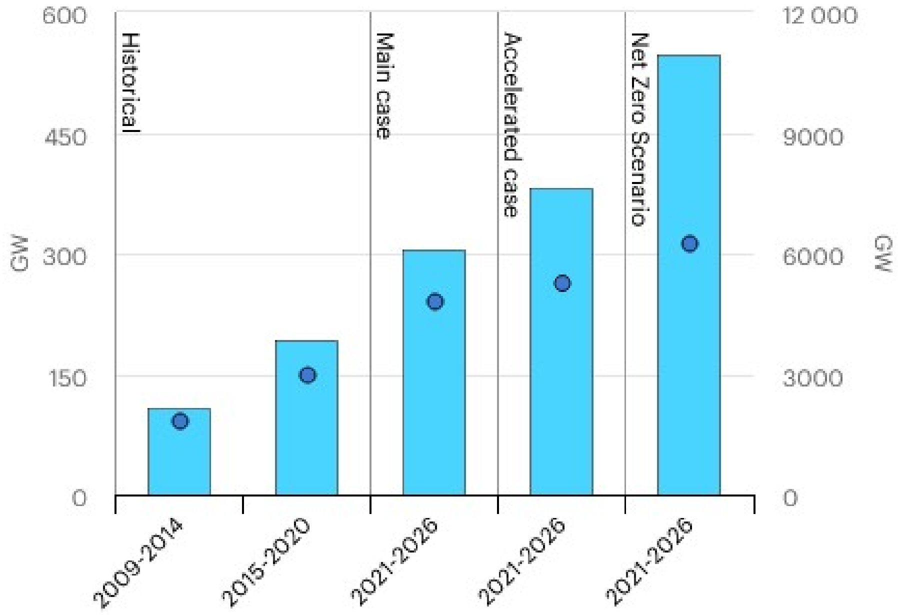



***Figure 20:*** *Annual average of renewable capacity additions and cumulative installed capacity, historical, forecasts and IEA ceror net scenario, 2009-2026.*

***Source****: International Energy Agency, December 2021.*

The **global picture of the origin of sources for electricity generation** during the 2022-24 triennium and its comparison with the actual data for the 2019-21 triennium, together with the total annual carbon dioxide emissions, is reflected in the following table. In 2021, 28,437 TWh of electricity were generated, with the following distribution according to source: 36.3% coal, 27.8% renewable, 22.5% gas, 9.7% nuclear and other non-renewable 3.7%. For the 2022-24 triennium, a 2.5% increase in global production is forecast, accompanied by a slight increase in emissions of only 0.2%, as electricity from renewables will take over most of the growth with a figure of 7.8%.

| TWh | 2019 | 2020 | 2021 | 2024 | Growth rate 2020 | Growth rate 2021 | CAAGR 2022-2024 |
|---|---|---|---|---|---|---|---|
| Nuclear | 2 790 | 2 682 | 2 777 | 2 869 | -3.9% | 3.5% | 1.1% |
| Coal | 9 914 | 9 520 | 10 337 | 10 415 | -4.0% | 8.6% | 0.3% |
| Gas | 6 346 | 6 276 | 6 410 | 6 549 | -1.1% | 2.1% | 0.7% |
| Other non-renewables | 980 | 994 | 1 023 | 915 | 1.4% | 3.0% | -3.6% |
| Total renewables | 7 015 | 7 449 | 7 913 | 9 906 | 6.2% | 6.2% | 7.8% |
| Total generation | 27 044 | 26 921 | 28 437 | 30 654 | 2.5% | 5.7% | 2.5% |
| **Mt $CO_2$** | **2019** | **2020** | **2021** | **2024** | **Growth rate 2020** | **Growth rate 2021** | **CAAGR 2022-2024** |
| Total emissions | 12 603 | 12 192 | 13 022 | 13 088 | -3.3% | 6.8% | 0.2% |

Notes: CAAGR = compound average annual growth rate. *Other non-renewables* includes oil, waste and other non-renewable energy sources. Differences in totals are due to rounding.
Source: IEA analysis based on data from IEA (2022), Data and statistics.

*Figure 21: Breakdown of origin and emissions in electricity generation at the global level, 2019-24.*

*Source: International Energy Agency, January 2022.*

**The origin and increase in the share of renewables** in electricity generation are even **more pronounced in Europe** than in the rest of the world, as shown in the following table. European countries, excluding Russia, Ukraine and Belarus, generated 3,976 TWh of electricity in 2021, from 40.6% renewables, 20.7% from nuclear energy, 20.2% from gas, 15.3% from coal and 3.2% from other non-renewables. For the 2022-24 triennium, a 1% increase in European production is expected, accompanied by a significant reduction in carbon dioxide emissions of 6.7%, due to a forecast increase in renewables of 7% and a reduction in the share of coal of 10.7%, with the maintenance of a similar share of gas in the electricity mix.

| TWh | 2019 | 2020 | 2021 | 2024 | Growth rate 2020 | Growth rate 2021 | CAAGR 2022-2024 |
|---|---|---|---|---|---|---|---|
| Nuclear | 848 | 757 | 803 | 742 | -10.7% | 6.0% | -2.6% |
| Coal | 659 | 530 | 590 | 421 | -19.5% | 11.3% | -10.7% |
| Gas | 762 | 750 | 781 | 783 | -1.6% | 4.2% | 0.1% |
| Other non-renewables | 120 | 118 | 122 | 108 | -1.5% | 3.4% | -4.1% |
| Total renewables | 1 451 | 1 559 | 1 568 | 1 923 | 7.4% | 0.6% | 7.0% |
| Total generation | 3 840 | 3 714 | 3 865 | 3 976 | -3.3% | 4.1% | 1.0% |
| Mt $CO_2$ | 2019 | 2020 | 2021 | 2024 | Growth rate 2020 | Growth rate 2021 | CAAGR 2022-2024 |
| Total emissions | 966 | 837 | 906 | 735 | -13.4% | 8.2% | -6.7% |

Notes: CAAGR = compound average annual growth rate. *Other non-renewables* includes oil, waste and other non-renewable energy sources. Differences in totals are due to rounding.
Source: IEA analysis based on data from IEA (2022), Data and statistics.

*Figure 22: Breakdown of provenance and emissions in electricity generation in Europe, 2019-24.*

*Source: International Energy Agency, January 2022.*

By 2022 **, renewable energies in electricity production in Europe are expected to increase by 150 TWh**, while those of coal, gas and nuclear will be reduced in total by around 80TWh. Only for 2023 an increase of 50 TWh of gas is expected, which presumably will have to be reviewed after the significant increases in its price and the crisis with Russia.

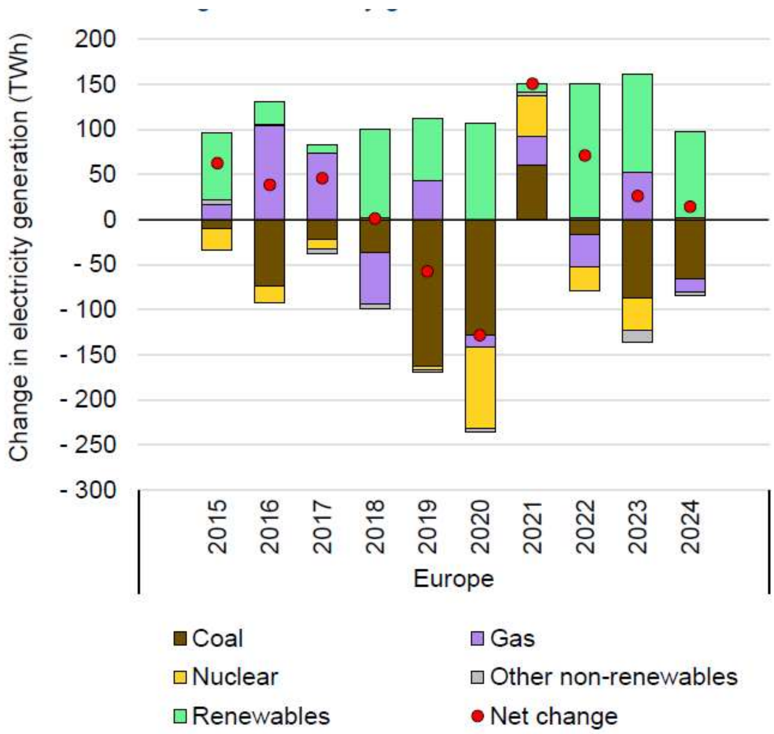



***Figure 23:*** *Changes in electricity generation in Europe, 2015-24.*

***Source****: International Energy Agency, January 2022.*

## The "dependence" on Russian natural gas

In recent days, **the energy dependence of Europe**, **especially Germany and Central Europe, on Russian gas** has been commented and debated in all the media. The degree of this dependence must be nuanced and varies, in addition, according to the country.

According to the European Environment Agency, 77% of European energy consumption in all its forms (fuel, heating gas, electricity...) comes from fossil fuels. According to the European Union's Directorate-General for Energy, **25% of the energy consumed in the Union comes from natural gas**: the second largest source of energy after oil (32%). **About 45% of European gas imports came from Russia in 2021**, according to the IEA; this gas represents almost 40% of the total that was consumed. In terms of volume, the European Union imports around 380 million cubic meters of Russian gas, with a total of 140 billion cubic meters per year, to which must be added 15 billion supplied as liquefied gas.

The distribution figures for this gas vary between the various countries depending on its volume and the percentage it represents: at the head of the dependency is Poland that imports 80% of its gas from Russia, followed by Austria and Hungary with around 60%, Germany with 50%, Italy with 40%, France and Benelux, at the tail end, with less than 10% and close **Spain and Portugal**

**that do not import Russian gas**. Russian gas has a weight of just over 15% in Germany's energy mix.

In the event of a **sudden shutdown of the Russian tap, it would not be, predictably, in a situation of paralysis of the economy beyond a few days**. In fact, according to Gas Infrastructure Europe (GIE), representative of european gas infrastructure operators, if the capacity of the gas pipelines that reach Europe and the liquefied gas that arrives by ship for storage is taken into account, gas from outside Russia has a flow of 84-89 TWh per week and that of Russia a maximum flow of 54 TWh. In addition, according to data from the last week of January 2002, the flow of gas to Europe from Russia was 18TWh per week (one third of the capacity of the pipelines) and that from other destinations of 72TWh (80%).

**As of March 22, the European Union has stored 284.61 TWh of gas, 25.62% of its capacity**, which in the case of Germany is 24.91% of its capacity with 61.1 TWh and in the case of Spain 57.95% with 19.84 TWh. More worrying is the fact that the reduction in imports of Russian gas, and above all its cessation, **could lead to a rise in gas prices on the world market**, and therefore also in electricity, since Europe should replace the decrease in the flow of Russian gas pipelines with the acquisition of liquefied gas from the United States, Algeria, Norway and Azerbaijan.

At the moment, **the German government has not given signs aimed at paralyzing current imports**, despite the fact that voices are already being raised in the European Parliament in favor of introducing the cessation of the purchase of gas in the package of sanctions against Russia, in order to cut off sources of financing to the Russian government to continue the war against Ukraine. It must also be borne in mind that the continuation of the war could cause fortuitous or intentional damage to the gas infrastructures that cross Ukrainian territory from East to West, passing through the vicinity of Kharkov and Kiev, into the heart of Europe. The risks of being damaged by the war the Nord Stream 1 marine gas pipeline in the Baltic Sea and the yamal-Europe land gas pipeline that passes through Belarus are minimal.

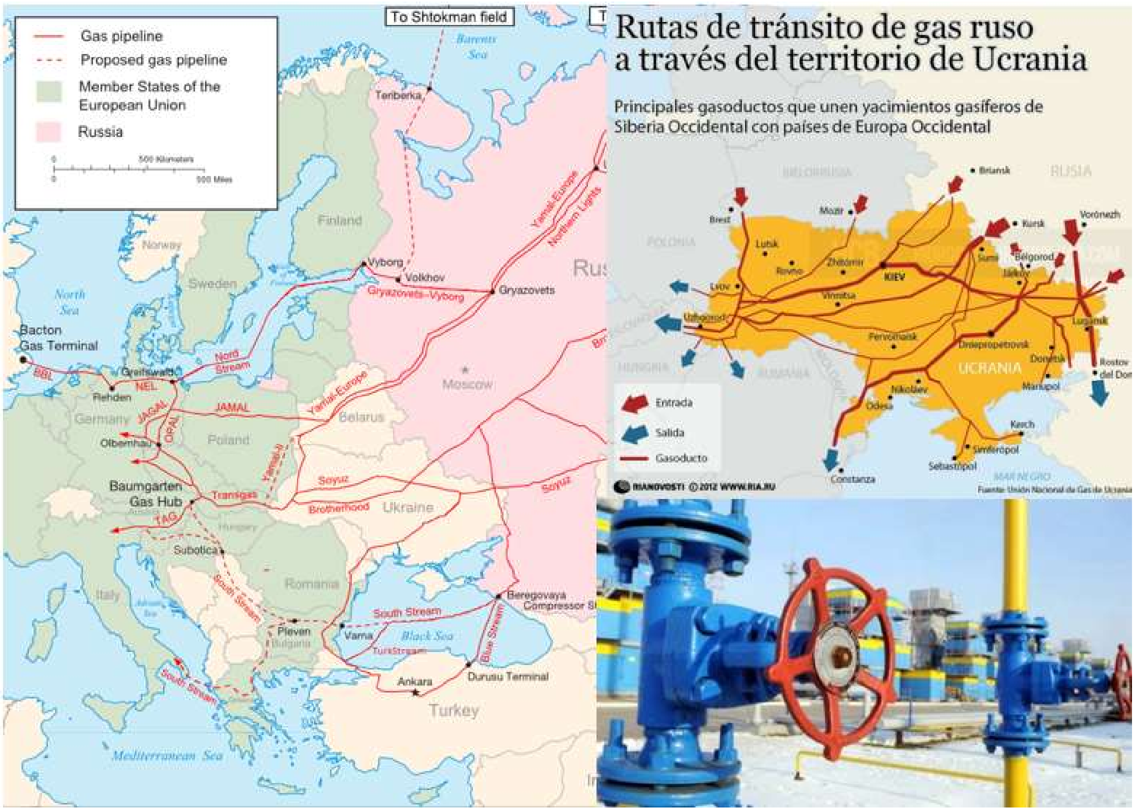



*__Figure 4:__ Transit routes of Russian gas to Europe.*

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## Uncertainty of the evolution of the price of electricity in 2022.

The volatility of the price of electricity, linked to the volatility of the price of oil and gas on the world market, is the only certainty, unless the European Union decides to put limitations on prices or even the unlikely intervention of the markets. The high unpredictability of prices is determined by the current situation marked by the war in Ukraine and the growth of energy demand with the recovery of economic activity after the pandemic, but even the pace of this recovery is uncertain and can be compromised again by unforeseen disruptions in the global logistics chain.

The **high uncertainty of the price of electricity caused by the volatility and unpredictability of the markets** on the occasion of the war in Ukraine **has pulverized all the estimates** presented in the last two months for the year 2022 in Europe and in Spain. Bloomberg at the beginning of the year placed the average annual cost of electricity **between €98 and €103/MWh in Spain. What remains of this estimate when the average price of the megawatt hour in the first ten days of March was 358.48 euros? On March 8, the megawatt hour was paid on average at 544.98 euros and exceeded 700 euros between 19 and 20 hours.**

Key to the estimation of the price of electricity is the behavior of the price of gas and oil, especially if the price of gas is still the one that marks the price of electricity in Europe, in order to favor the profitability of renewable energies when it rises. But the forecasts are not promising.

The data on **oil prices** during the first three months of 2022 show an even faster rise than that of 2021: an average price of € 75.48 in January, € 83.06 in February and € **100.23 in the first half of March**. It is estimated that if sanctions against Russia are successful and importers stop buying, 3 million barrels of Russian oil per day could be withdrawn from the world market by April. Only Saudi Arabia and the United Arab Emirates have substantial additional capacity that could immediately help offset Russia's deficit, but OPEC+ remains, for now, in its agreement to increase supply only by modest monthly amounts. If demand for fossil fuels continues or even grows, there is a high probability that **prices will continue to rise.** Some experts have even raised the possibility that a barrel of oil could reach $300 by the end of 2022.

## European energy saving and price containment measures.

The arrival of good weather will allow a significant reduction in the consumption of Russian gas for heating, which could even open the door to some type of sanction related to gas in the coming months in a scenario of continuity of the Russo-Ukrainian war. But beyond the short-term measures caused by the circumstances, what is certain is that there are growing voices in the European Union and in the governments that advocate starting a **gradual disconnection of Europe from the supply of Russian natural gas during the coming months and years**. In this regard, the IEA proposed at the beginning of March 2002 a decalogue of urgent measures to reduce the European Union's dependence on Russian gas, which, if implemented, could reduce imports by around a third. These include introducing gas storage obligations, accelerating the deployment of new wind and solar energy projects and maximizing generation by bioenergy and nuclear sources, accelerating the replacement of gas boilers with heat pumps, lowering the temperature indoors (a 1º wording can mean a saving of 10 billion cubic meters). The European Union's RePower PLAN proposes to achieve the total elimination of dependence on Russian gas by 2030.

At the moment, the European Union has already adopted measures to **strengthen its resilience**, such as increasing the strategic gas reserve, ordering European deposits to be filled to at least 90% by October 2022. In the coming days, new agreements are expected from European countries, which could go both in the adoption of specific measures for energy savings and, above all, in the direction of accelerating the speed of decarbonization of electricity generation and transport.

Among the **short-term measures for energy savings**, the IEA's proposal for ten urgent measures to **reduce the use of fuel in transport** stands out, in order to reduce the energy bill and pressure the oil market to lower prices, some of which could also be agreed by the European Union. Within the plan stand out, for its impact, the reduction of speed limits on the roads at least 10 km / h, work from home up to three days a week where possible, Sundays without cars in cities, lower the price of public transport, limit the days of use of private cars on access roads to large cities, reduce air travel and promote efficient freight handling.

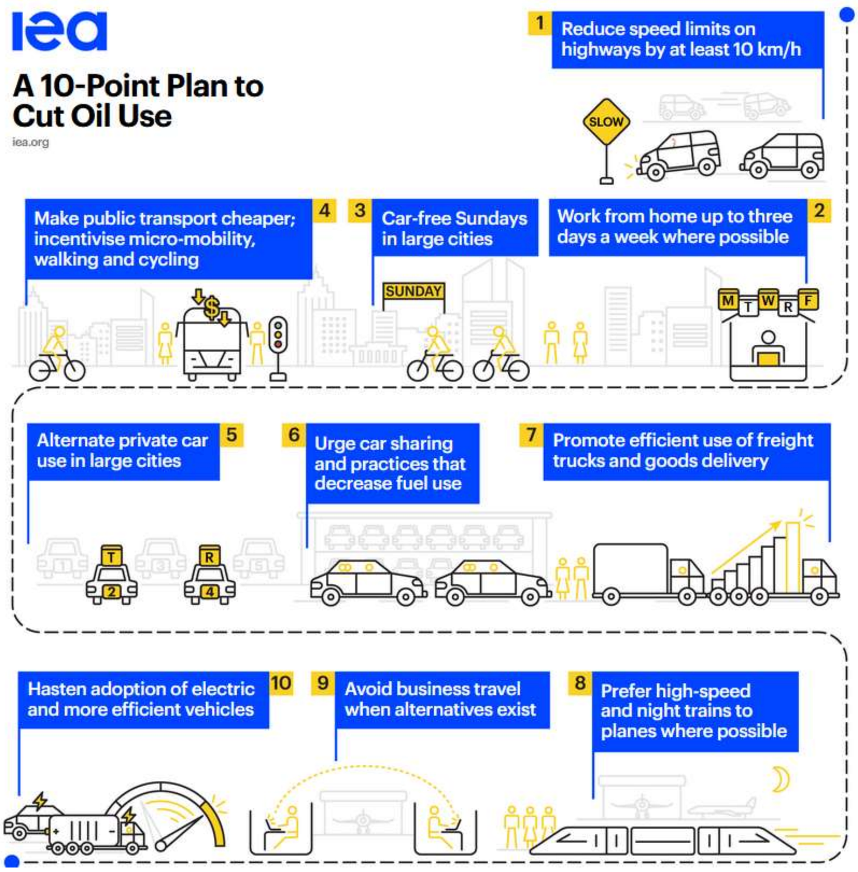


***Figure 5:*** *Plan to reduce fuel use.*

***Source****: International Energy Agency.*

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**There is a broad consensus in the European Union on three aspects**:

1. The need to continue deepening the adoption of **energy saving measures**: what is under discussion is the advisability of ordering or promoting one or other measures of a conjunctural nature.

2. The search for **supply alternatives to Russian gas** in the international gas market to guarantee supply for next winter.
3. **Accelerating the transition to renewable energy:** Fit for 55 programme.

However, among the governments of the member countries there is an **open debate on four essential issues** to face the current situation of escalating energy prices, in order to mitigate its impact:

1. **Continue with a common European regulatory framework for the calculation of the price of electricity in the wholesale market**. Most likely, the current situation will continue, since the rupture of that framework would only arise if large differences persist in the rest of the measures and in a horizon marked by the impossibility of reaching some kind of common agreement.
2. **Maintain gas as a reference energy source to set the price of electricity in the wholesale market**. Spain has proposed revising this point, proposing that the reference be the maximum price at which combined cycle power plants can offer electricity; but Germany seems to be adamant in continuing to bet on the gas reference.
3. **Establish a fixed price or a maximum limit for electricity in the European wholesale market**. This is the thorniest point, since some governments, especially the German and those of the Nordic countries, consider that such a measure is totally contrary to the free market. On the other hand, other governments and political and social forces consider that the adoption of such a measure in an exceptional and not permanent way is coherent within the framework of an economy as regulated as the European one, in view of the gravity of the situation, with the risk of collapse of various economic sectors unable to assume the growing costs of energy. Possibly it will be the main issue to be discussed and where the main discrepancies will manifest. The encounter between opposing positions could be found in the **setting of a reference price**.
4. **Adopt common taxation measures on fuels and electricity**, which include tax cuts and even direct subsidies in the purchase of energy from companies and individuals. This agreement is the least likely, although there is the possibility of common guidelines that can guide national policies in this regard.

The whole of the European Union looks forward with great expectation to the results of the Summit to be held by the Governments of the Union on 24 and 25 March 2002, where the issue of energy is at the heart of the european union. In the case of Spain, the Government has delayed until the results of that summit are known the adoption of measures, which it has initially announced for March 29. We will have to be attentive to the decisions that are taken in the coming days.

However, consideration must be given to the possibility that, in *the current*stage, **the Europe Agreements and national measures to be taken with regard to the price of fuels and electricity could be insufficient or even a dead letter after a few months**. War conflict in Europe, economic sanctions and excessive rise in energy prices could cause an inflationary spiral and a situation of stagnation of economic growth, which would mean a reduction in tax revenues and the growth of public debt in a context marked by the implementation of direct or indirect aid, in the form of tax benefits,  for activities and companies where the impact of energy costs is high.

## The cost of electricity for refrigeration operations in Spain.

Among the activities very dependent on electrical energy are cold stores. How has the increase in the cost of energy in 2021 affected cold logistics in Spain?

In the case of refrigeration operations dedicated to the consideration of refrigeration services to third parties, **the cost of electricity has considerably increased its share of total costs during 2021**.  This is reflected in a survey conducted by ALDEFE among its associates in January 2022. **In 2020**, the cost of energy over total costs (except financial and amortization) represented **an average of 18%** in the sector as a whole. The constant rise in the price of electricity, an essential resource to generate cold, throughout **2021**, especially in the second quarter, has raised the average cost of energy to **28%,** representing an increase of more than 55.5%. In several companies this cost has even exceeded 40% of the total costs.

The **outlook for 2022** is much worse, as companies expect, according to that survey, that the cost of energy will reach an **average of 36%,** which would represent a **doubling of costs compared to 2020.**  In some companies, the share of electricity in costs is expected to be even higher than 50%.

This situation has led the refrigeration sector to a significant reduction in the profit margin during the 2021 financial year**, reaching situations of losses in recent months**. If the growth in the price of electricity continues and in the absence of support from the Administration in the form of tax exemptions, as other industrial sectors have, or direct aid for the improvement of energy efficiency, **the viability of companies dedicated to cold logistics services is at risk**. Consequently, the reduction or temporary suspension of their activity would jeopardize **the**

**employment they generate**, as well as **the provision of essential services such as the preservation and transport of food and pharmaceutical products.**

The **impact of the increase in costs on the preservation of frozen products,** linked to electricity, cannot be transferred directly to customers, food production and distribution companies, since they work with fixed-price storage contracts for a certain time. In addition, the rise in warehouse and distribution costs would contribute to the rise in inflation in the basic shopping basket and would be detrimental to the competitiveness of Spanish frozen food exports.

In addition, in a context of rising costs and reduced profit margins, **companies must delay their investment projects to modernise and improve energy efficiency and to expand facilities** demanded by technological and environmental trends and the growth in the consumption of refrigerated products.

## The unfair exclusion of refrigeration holdings from the industrial tax exemption .

The cost of electricity for the final consumer depends not only on the average price in the market, but also on other elements such as the contracted power and its profile and hours of consumption. The electricity bill for companies is based on a structure of electricity access tolls with six power terms and six energy terms. **The refrigeration operations are mostly assigned to toll 6.1**, contracted power equal to or greater than 450 kW and voltage between 1 kV and 30 kV.

The estimated billing for the electricity supply of the average consumer for **tariff 6.1 has experienced a notable increase**. According to the latest data provided by the CNMC, the price in May 2021, excluding taxes or marketing margin, was 10.6 cents of €/kWh, which contrasted negatively with the average cost of 2020 which had been 7.61 cents, that is, an increase in the price of 39.29% (*Bulletin of electrical indicators of September 2021* ). The publication by the CNMC of the results of the cost in the second half of 2021 will highlight the sharp rise in the electricity bill at toll 6.1.

To try to reduce the rise in electricity, the draft ministerial order establishing the prices of electricity system charges for the year 2022 sets for tariff 6.1 a charge of €12.30/MWh (compared to €16.99 in 2021) and a capacity payment of €0.11/MWh (0.25 in 2021), with a total of €12.41/MWh (17.24 in 2021), which represents a reduction of 28.03% compared to the previous year.

However, this is not enough: the market cost represents 70% of the cost of the electricity bill before VAT, since the final consumer must add **the taxes paid for electricity consumption**, the amount of which increases in proportion to the rise in the price of electricity. The reduction of VAT from 21% to 10% in June 2021 and the reduction of other rates on the electricity bill in the last two months of the year, extended until April 2022, have not prevented companies from paying in 2021 an amount greater than that paid in 2018, the year with the most expensive electricity to date.

It should be borne in mind that **the Administration excludes refrigeration operations from the exemption of 85% of the Special Tax on Electricity (IEE) that the industrial sector has** for the consumption of electrical energy that is destined to chemical reduction and electrolytic processes, mineralogical processes and metallurgical processes, industrial activities where the electricity consumed represents more than 50% of the cost of the product and industrial activities whose purchases or consumption of electricity represent at least 5 percent of the value of production, **as well as the agricultural sector for agricultural irrigation** (*Law 28/2014, of November 27,* article 98). Irrigated cultivation, industrial food processing and the production of medicines are subsidized, but the necessary storage of these foods and pharmaceutical products in optimal cold conditions for their conservation and distribution are not. This **represents a comparative grievance for cold companies.**

***Royal Decree-Law 17/2021, of September 14*, reduced**, with effect from September 16, 2021, and after an extension, until April 30, 2022, **the tax rate of the IEE from 5.112% to 0.5%,** which is the minimum taxation allowed by the European regulations that regulate the Community regime of energy products and electricity. In any case, the resulting quotas may not be less than €0.5/MWh in industrial uses, agricultural irrigation, boats docked in port that are not private recreation and rail transport; and €1/MWh in all other uses. In addition, during this seven-month period, energy used for chemical reduction and electrolytic processes, mineralogical and metallurgical processes and industrial activities whose electricity cost represents more than 50 percent of the cost of a product is totally exempt from payment. This new regulation, while representing a tax improvement for refrigeration farms, continues to **deepen the grievance when compared to other better treated sectors, and also has an expiration date for the moment: April 30, 2022**.

Accordingto ALDEFE calculations, 50 % of the electricity bill of refrigeration operations corresponds to State revenue. **It is necessary and urgent to equate cold logistics with other industrial sectors in access to tax credits linked to the consumption of electricity and the**

**establishment of aid lines** to maintain the viability of the sector, guarantee the supply of food and reduce costs that ultimately have a negative impact on the consumer and exports. Especially, in a context where all analyses conclude that **the increase in electricity will continue during the year 2022**: the most conservative estimates made before the war in Ukraine already pointto the doubling of the cost of the price of electricity in the Spanish wholesale market compared to 2021, and some others even triple it,  attending to the auctions that arebeing produced in the futures markets.  However, if adequate European and Spanish price containment policy measures do not arrive soon, the forecasts of rising electricity prices could be even much higher and continued over time.

## COLLABORATING ENTITIES

Linde Material Handling

Linde

r&m REFRIGERACIÓN Y MANTENIMIENTO

Asociación de Explotaciones Frigoríficas Logística y Distribución de España

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