Cement market

Country report

France to 2024

CemBR

The ultimate "intelligence" provider in the global cement sector

Contents

1.0 GENERAL DATA

1.1 Country Profile

GENERAL DATA:	2019
CemBR REGION:	Western Europe
AREA IN SQUARE KM:	643,801
POPULATION:	67.2
URBANISATION RATE:	80.7%
CURRENCY:	EUR
COMPARATIVE ECONOMY SIZE:	7/193
GDP PER CAPITA IN US$:	41,761
OFFICIAL LANGUAGE:	French

Source: CemBR CGC™

1.2 Macroeconomic Considerations

In 2019, the French economy was the 7th largest in the world in terms of nominal GDP. Over the last decade, the country's economy expanded by a moderate 1.2% CAGR with the lowest growth rates registered during 2012-2013 after the onset of the Eurozone debt crisis. The French economy is driven by the services sector, which represents more than three quarters of the country's employment and 70% of total value-added. Although France is the largest agricultural producing country in the EU, the agricultural sector employs only 2.6% of the working population. France is among the leading tourism destinations in the world, with tourism's total contribution to GDP estimated at 8.5% in 2019.

Since 2012-2013, economic recovery has been subdued due to a combination of demographic and structural challenges, such as: a 98% debt to GDP ratio in 2019, a 3% budget deficit, a high rate of public expenditure (56% of GDP), an unemployment rate of 8.1% with nearly 20% youth unemployment, and the highest total tax burden in the EU (just below 50% of GDP).

FIGURE: HISTORICAL MACROECONOMIC ACTIVITY (2010-2019)

INDICATOR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
REAL GDP GROWTH RATE (%)	1.9%	2.2%	0.3%	0.6%	1.0%	1.1%	1.1%	2.3%	1.7%	1.3%
INFLATION RATE (%)	1.7%	2.3%	2.2%	1.0%	0.6%	0.1%	0.3%	1.2%	2.1%	1.3%
POPULATION (MILLION)	65.0	65.3	65.7	66.0	66.3	66.6	66.9	66.9	67.0	67.2

Source: IMF, World Bank

Further difficulties emerged in early 2020 when the SARS-COV2 pandemic led to a mandatory stay-at-home lockdown that started in mid-March and lasted for two months. The easing of the restrictions was short lived as new measures are starting to be implemented along with the second wave of SARS-COV2 cases. Even though the new lockdown measures will tend to be more regionalized, the effects on the French economy are expected to be significant. Thus, the COVID-19 crisis will push debt to GDP

well above 100% in 2020 and the budget deficit is expected to skyrocket to above 10% this year.

Shortly after his election in 2017, President Macron launched a program of labour and tax reforms to improve France's competitiveness and boost economic growth. Reforms aimed at improving flexibility in the labour market, while cutting public spending and reducing social security contributions to increase private investment. Ambitious pension reform plans are also on the President's agenda despite facing protests at times, as well as a possible reduction of the corporate tax rate before the next elections.

In the initial stages of the COVID pandemic, the French Government announced a EUR470 billion stimulus package, mostly focusing on tax breaks and subsidies for struggling companies along with increased public spending. Another EUR100 billion were pledged to be spent in September 2020, although this amount will be directed to jobs creation, the healthcare sector and developing green technologies. Twenty percent of the funds are aimed at encouraging manufacturers, foreign or domestic, to set up factories in the country. The intention of the Government is to return to pre-crisis levels by the end of 2022.

This appears to be a tremendous task, as the economy is expected to close 2020 with a record decline, possibly the largest since World War II. IMF estimates the 2020 real GDP drop at -12.5%, followed by a recovery of 7.3% in 2021.

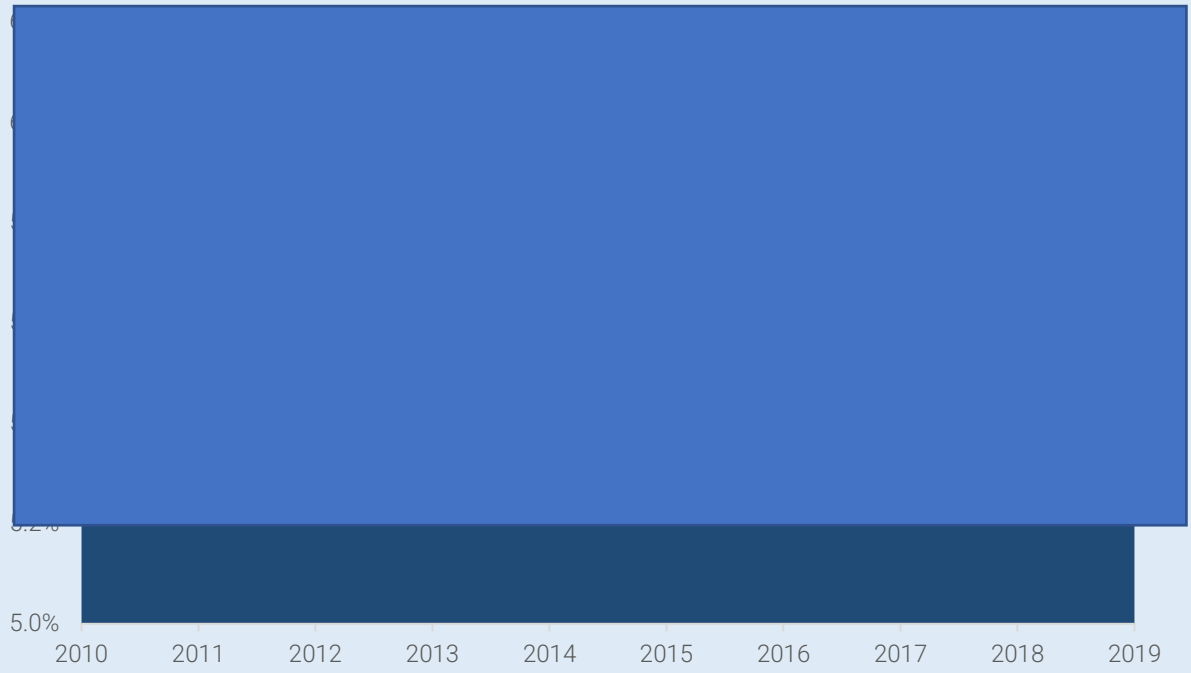
1.3 Construction Activity

The Eurozone crisis resulted in a drop of overall construction activity by [redacted] in 2016 versus 2011 as expressed in nominal value added, while the country's nominal value added expanded by [redacted] during the same time frame. As a result, construction activity fell from [redacted] in 2011 to [redacted] of GDP by 2016. The subsequent economic recovery to 2019 raised the sector's contribution to the economy but despite record residential construction in recent years, boosted by favourable credit conditions and the zero-rate loan scheme, the sector had still not fully recovered to its [redacted] level as a percentage of GDP. The current crisis is expected to push [redacted]

In 2017, the new Government presented an investment plan valid for a five-year term. The plan included EUR20 billion allocated to the construction sector. A separate Construction Revival Plan includes incentives for promoting homeownership, such as social access loans and programmes to boost home renovations. The European Investment Bank (EIB) also provided EUR3.2 billion in 2016 for construction projects, part of which was set aside for the upgrade and expansion of public transport. A large infrastructure project is the EUR25.5 billion Grand Paris Express metro network, which

is expected to be completed by 2030. EU funds of EUR863 million have also been allocated for energy and transport infrastructure projects for 2014-2020.

FIGURE: CONSTRUCTION AS PERCENTAGE OF GDP (%)



Source: INSEE - National Institute of Statistics and Economic Studies

The construction sector has been severely affected by the COVID-19 crisis. Activity levels collapsed by nearly 90% in March and April and it is estimated that construction order books returned to 2015 levels in the first month of the crisis. By mid-2020, construction activity had resumed at most sites, but some companies acknowledged that it might take them until the end of the year to return to full capacity. For the full year, it is expected that construction activity as a percent of GDP may fall [redacted]

The recently announced EUR100 billion support package by the Government includes several measures that assist the construction sector. EUR11 billion will be spent on transport, EUR5 billion of which for rail infrastructure. A total of EUR16 billion will be spent on renovation of older buildings that do not meet energy efficiency standards. Additional funds will be allocated to sustainability initiatives with a focus in hydrogen infrastructure, waste disposal and decarbonization of the industry.

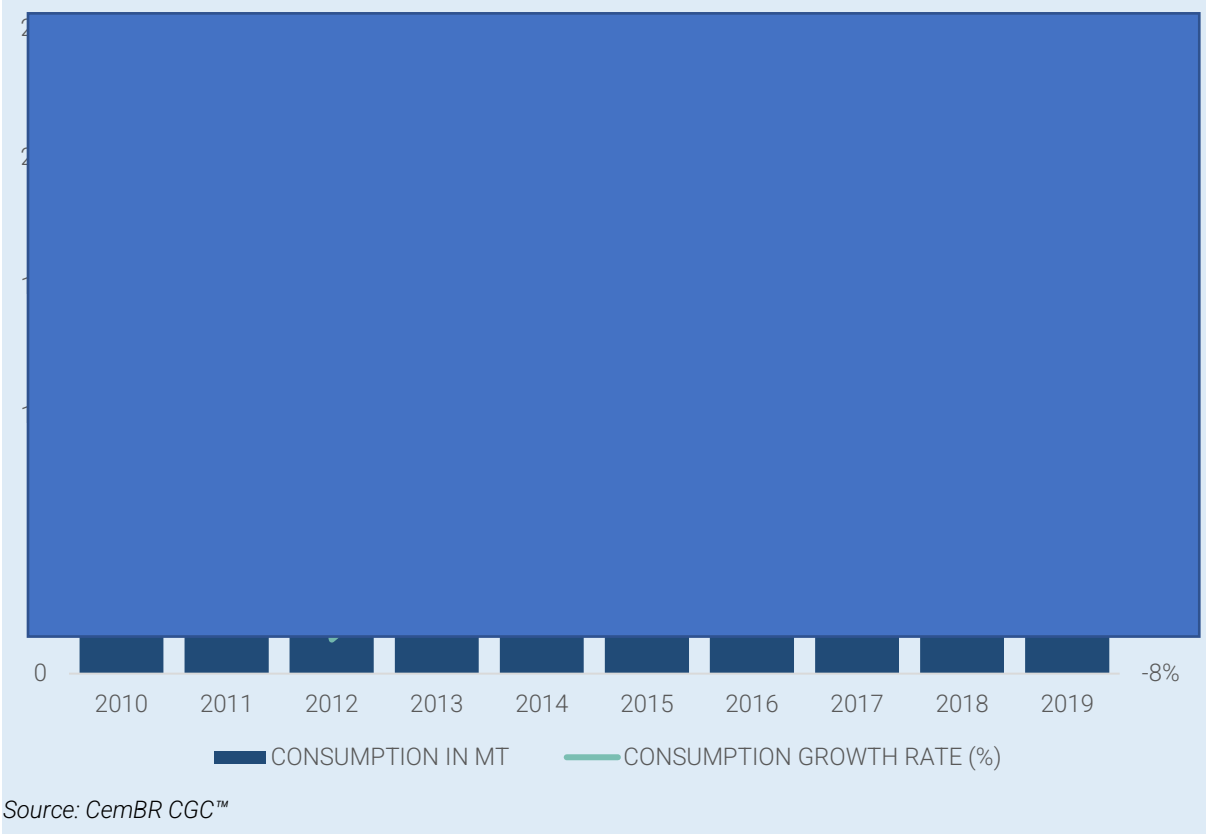
2.0 CEMENT MARKET DATA

2.1 Size and Past Performance

The French cement market has effectively remained flat in the last decade at about [redacted] million tonnes, with a minimal [redacted] CAGR registered between 2010 and 2019. Peak consumption of grey cement for the period was registered in [redacted] tonnes, just before the Eurozone debt crisis. That year saw the highest YoY growth rate in consumption as the market was still recovering from the previous crisis (2008 financial crisis). The subsequent downturn saw grey cement consumption reach a trough of [redacted] after four years of consecutive decline, at a CAGR of [redacted] versus 2011.

Consumption recovered steadily between 2015 and 2019 with a CAGR of [redacted] 2017 saw the highest growth rate when residential building activity reached an annual record, following the election of President Macron. The cement consumption growth softened in the next two years, especially in 2019 when it grew by only [redacted] YoY, as a contraction in housing activity was offset by increases in public works and other real estate segments. As a result of the COVID-19 crisis, consumption is expected to [redacted] in 2020.

FIGURE: CONSUMPTION OF GREY CEMENT (2010-2019)



Source: CemBR CGC™

Cement consumption in France is nearly evenly spread between the following categories: new housing, public works, and renovations and non-residential real estate.

In terms of regional cement consumption, more [redacted] is consumed in the North-West, [redacted] in the South and almost [redacted] in the North East.

Given that cement consumption was effectively flat over the last decade and that the population grew by over 3% in total during the same period, it is unsurprising to see a [redacted] decline in per capita consumption (from [redacted] in 2010 to [redacted] in 2019). The highest per capita consumption was in 2011 with [redacted] kg and the lowest in 2015 with [redacted] kg. These were also the years of the highest and lowest total cement consumption of the past decade.

FIGURE: PER CAPITA CEMENT CONSUMPTION (2010-2019)

INDICATOR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PER CAPITA (KG)	[redacted]									

Source: CemBR CGC™

Cement consumption growth lagged real GDP growth, which has averaged at about [redacted] CAGR between 2010 and 2019 versus a [redacted] CAGR for cement consumption. This was partly driven by the fact that the Eurozone debt crisis had an amplified negative effect on France's construction activity between 2012 and 2015.

2.2 Cement Market Characteristics

Within the French cement industry, most of the cement is sold in bulk with just [redacted] sold in bags. Within the bulk cement segment, ready-mix and industrial concrete dominate the market with a combined [redacted] market share.

FIGURE: CEMENT MARKET CHARACTERISTICS

Source: CemBR CGC™

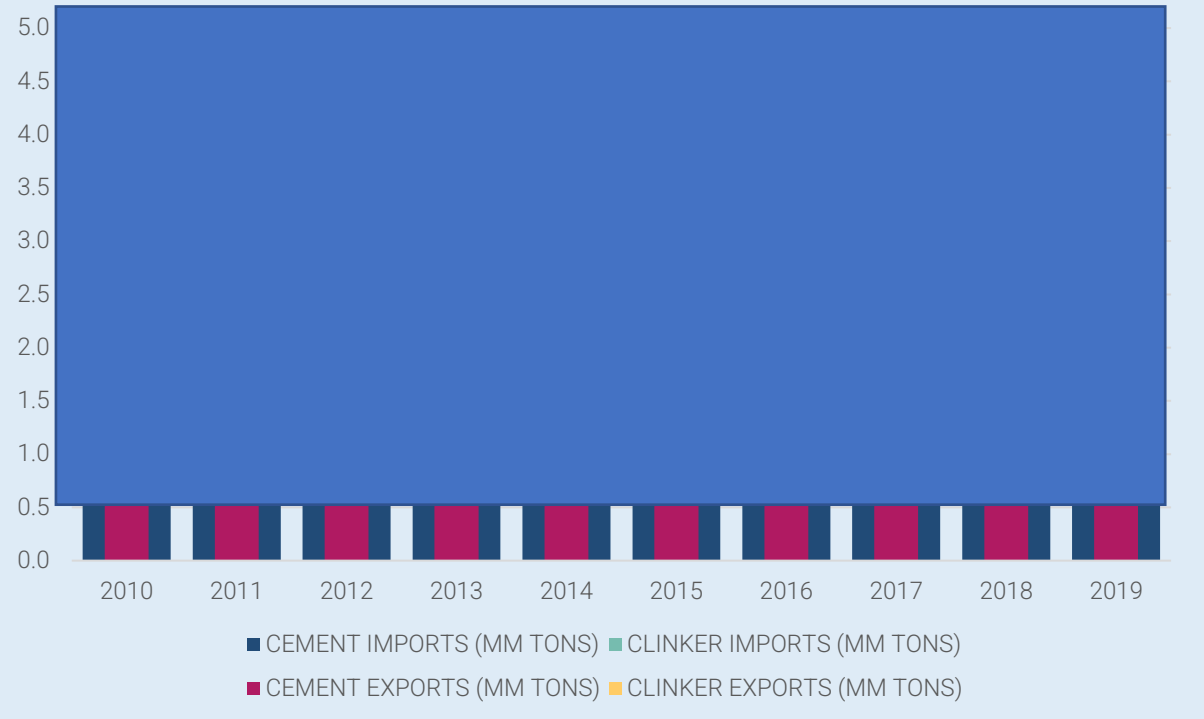
The clinker to cement ratio is [redacted] which indicates that [redacted] for introducing other cementitious materials (clinker substitutes) in the market, depending on availability and cement types requirements for specific construction projects. It is worth mentioning that the market is dominated by [redacted] products ([redacted]), followed by [redacted] ([redacted] and other cement types.

3.0 INTERNATIONAL TRADE

France is a net importer of both cement and clinker, with [redacted] million tons of cement (excluding white cement) and just above [redacted] million tons of clinker imported between 2010-2019. On another hand, total exports for the period amounted to only [redacted] million tons of cement (excluding white cement) and [redacted] million tons of clinker.

This characteristic of the French cement market implies that cement imports follow the pattern of overall cement consumption. This was easily observed in 2011 when both cement consumption and cement imports registered an upward trajectory followed by a steady downtrend up to the end of 2016. France imports the vast majority of its grey cement requirements from European peers, such as [redacted] These countries are 'natural' trading partners for France given their proximity, intra-regional presence of major cement producers and/or their under-utilized domestic cement capacities. Non-EU countries that export cement to France include Vietnam, Malaysia, Turkey, and Saudi Arabia.

FIGURE: GREY CEMENT AND CLINKER MARKET IMPORTS - EXPORTS (2010-2019)



INDICATOR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CEMENT IMPORTS (MM TONS)	[redacted]									
CLINKER IMPORTS (MM TONS)	[redacted]									
CEMENT EXPORTS (MM TONS)	[redacted]									
CLINKER EXPORTS (MM TONS)	[redacted]									

Source: CemBR CGC™

Clinker imports have also been increasing considerably since 2015-2016, but their increase was not driven only by the growth in cement consumption. Clinker utilization rates [redacted] (calculated based on clinker design capacity), which might pose some technical issues on the plants. It is not uncommon for a cement market like France that is dominated by older and smaller kilns, with a considerable share of semi-dry kilns and still a few wet kilns, to have a lower effective capacity than the one designed, which implies that part of the cement plants might struggle to produce the current levels of clinker. The usage of alternative fuels can also negatively influence the effective clinker capacity.

Cement exports from France on the other hand have remained rather stable throughout the last decade at an average of [redacted] million tonnes per year. The highest exports were observed in 2013 with [redacted] million tonnes and are mostly destined to EU countries, such as Germany, Luxembourg, Italy, Belgium, and Spain. Clinker exports have also been stable during 2010 and 2019 averaging at around [redacted] million tonnes per year.

4.0 SUPPLY CHARACTERISTICS

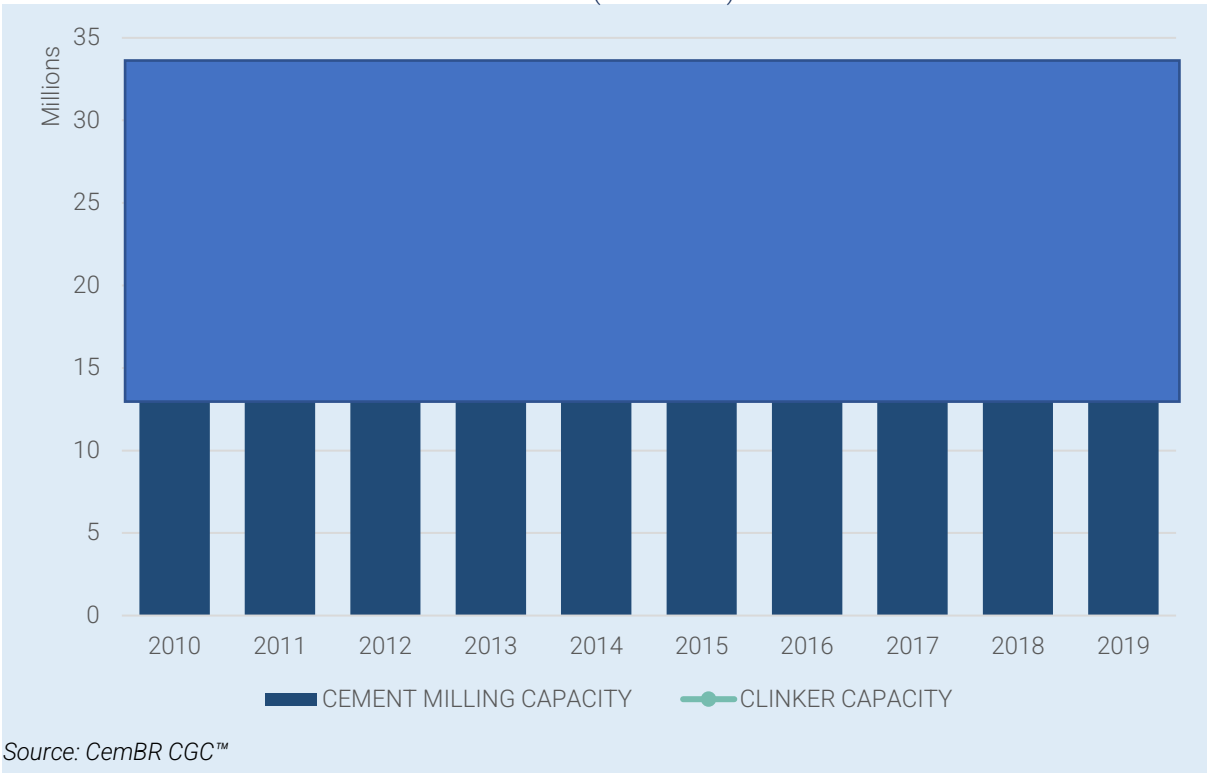
4.1 Supply

Over the last decade, grey cement capacity has increased steadily from around [redacted] million tonnes in 2010 to [redacted] million tonnes in 2019. Throughout this period, cement capacity was increased through the following additions:

- 2012: the opening of [redacted]
- 2013: the commissioning of [redacted]
- 2016: the commissioning of [redacted]
- 2017: Eqiom opens [redacted]
- 2018: Cem'In'Eu [redacted]
- 2019: Hoffmann Green Cement Technologies [redacted]

On the other hand, the French market lost 350,000 tonnes in cement capacity during 2013 when [redacted] permanently closed its [redacted] cement plant.

FIGURE: GREY CLINKER AND CEMENT CAPACITY (2010-2019)



Source: CemBR CGC™

Clinker capacity declined from [redacted] million tonnes in [redacted] to [redacted] million tonnes in [redacted] after three integrated cement plants were turned into grinding units and one integrated cement plant was permanently closed, as follows:

- 2013: LafargeHolcim Ciments [redacted]
- 2014: Eqiom turns [redacted]
- 2016: LafargeHolcim Ciments [redacted]

The current picture of cement capacity in France is as follows:

FIGURE: CEMENT PLANTS AND COMPANIES (2019)

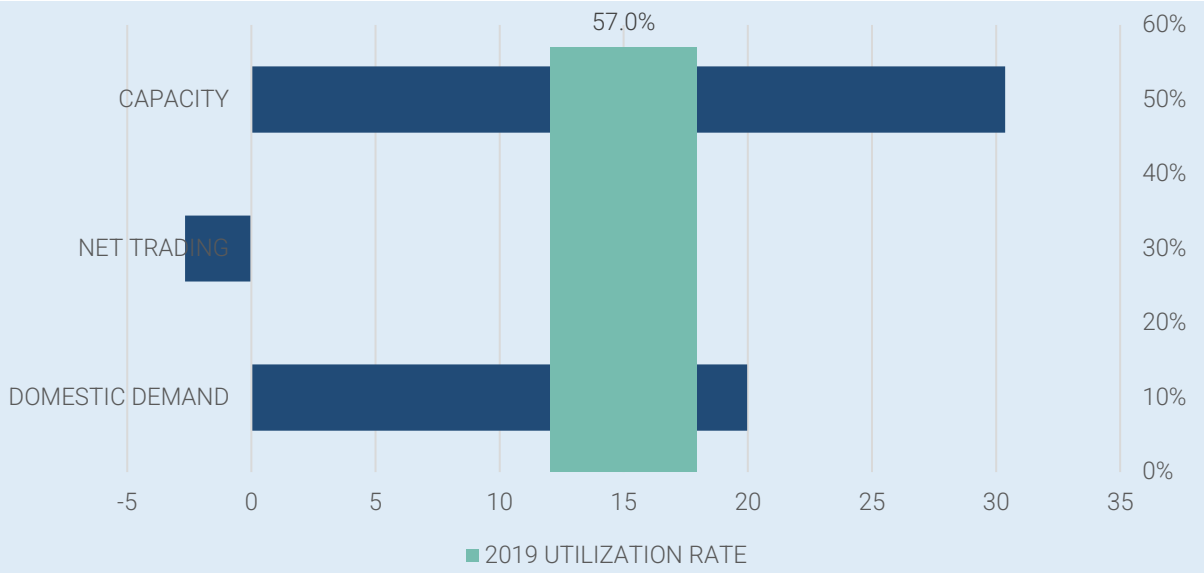
INDICATOR	INTEGRATED	GRINDING	WHITE
TOTAL PLANTS (NUMBER)	[redacted]	[redacted]	[redacted]
TOTAL CEMENT CAPACITY (MT)	[redacted]	[redacted]	[redacted]
TOTAL COMPANIES (NUMBER)	[redacted]	[redacted]	[redacted]
AVERAGE PLANT SIZE	[redacted]	[redacted]	[redacted]

Source: CemBR CGC™

For the purpose of this report that focuses on grey cement, the white cement segment has not been included in the figures and forecasts.

The grey cement supply – demand balance for 2019 shows an [redacted] situation ([redacted]). When international trade is considered, the estimated supply – demand balance is as follows:

FIGURE: GREY CEMENT SUPPLY-DEMAND AND UTILIZATION RATE (2019)



Source: CemBR CGC™

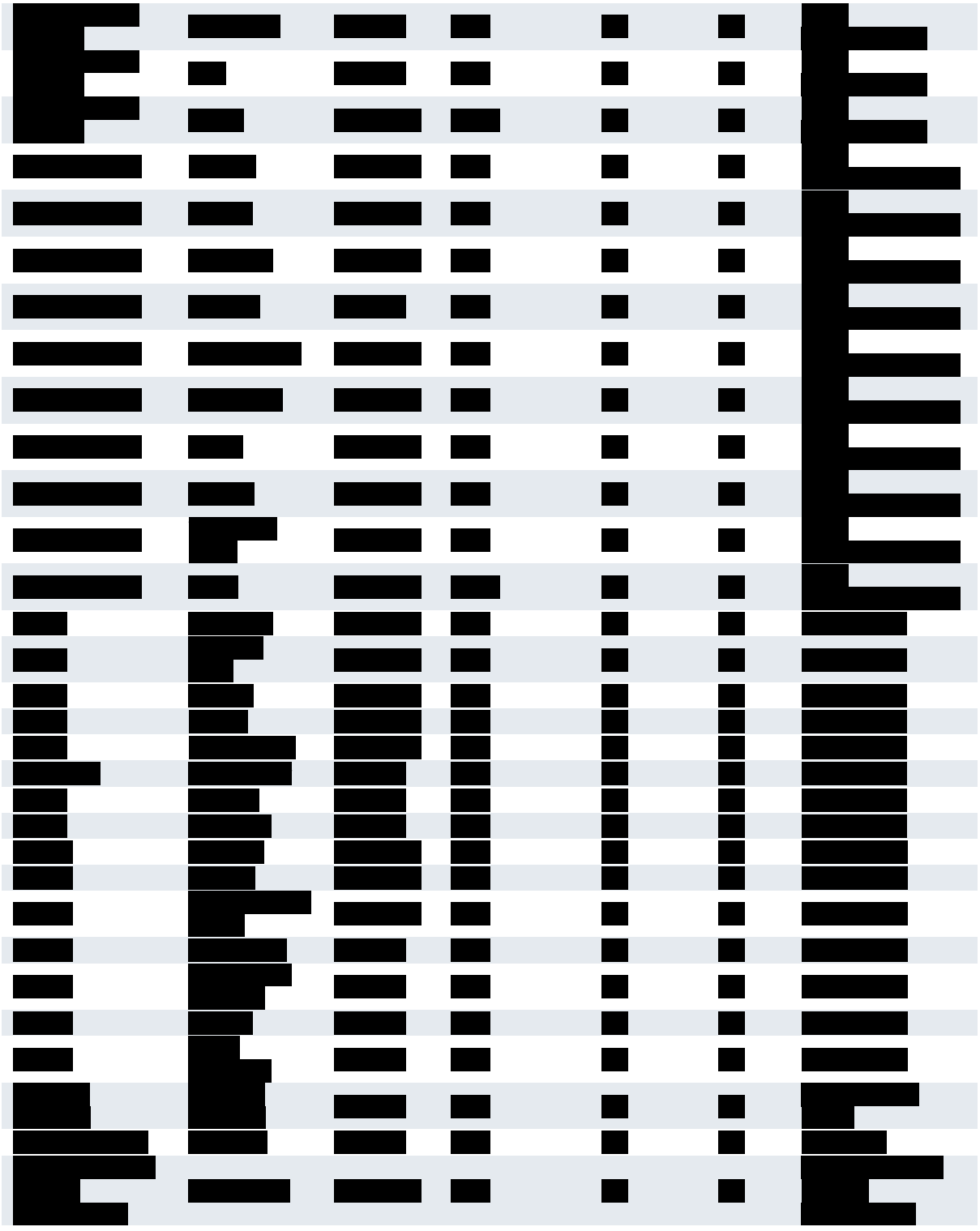
It must be noted that the above Supply – Demand balance is derived by examining the domestic consumption and the domestic total cement milling capacity. In markets with certain specific characteristics for e.g. the existence of independent grinding plants, the oversizing of mills at integrated plants (i.e. actual milling capacity above clinker-based cement capacity), and an active international trade on clinker (particularly exports of clinker), the actual clinker utilisation rate may be significantly different to the cement milling capacity utilisation rate. CemBR uses the cement milling capacity for this indicator as it is consistent with all other data points of this report.

4.2 Cement Plant Data

The names, location, nameplate capacity and ownership of cement plants (both integrated and grinding) are provided in the table below:

FIGURE: LIST OF CEMENT PLANTS AND COMPANIES (2019)

LOCAL COMPANY NAME	LOCATION	TYPE OF PLANT	TYPE OF PRODUCT	CEMENT CAPACITY	CLINKER CAPACITY	ULTIMATE OWNERSHIP
[redacted]						



Source: CemBR CGC™

FIGURE: MAP OF CEMENT PLANTS BY COMPANY NAME (2019)

Source: CemBR CGC™

4.3 Market Participants

The description of each market participant in France is shown in the table below:

FIGURE: DESCRIPTION OF MARKET PARTICIPANTS (GREY CEMENT)

LOCAL COMPANY NAME	# PLANTS	INFLUENCE CAPACITY (MT)	FINAL OWNERSHIP	NATURE OF OWNER
[redacted]				

Source: CemBR CGC™

The nature of the industry participants often determines the behaviour of the industry as a whole. If the participants are of similar nature, it is more probable that they will be subject to similar corporate values and characteristics and would encourage a more financially disciplined behaviour. This would support a less aggressive behaviour in terms of pricing and market share skirmishes.

Until 2015, the French cement market was shared between [redacted] These new entrants diluted only slightly the dominance of the cement majors in France.

FIGURE: MARKET PARTICIPANTS STRUCTURE (2019; GREY CEMENT)

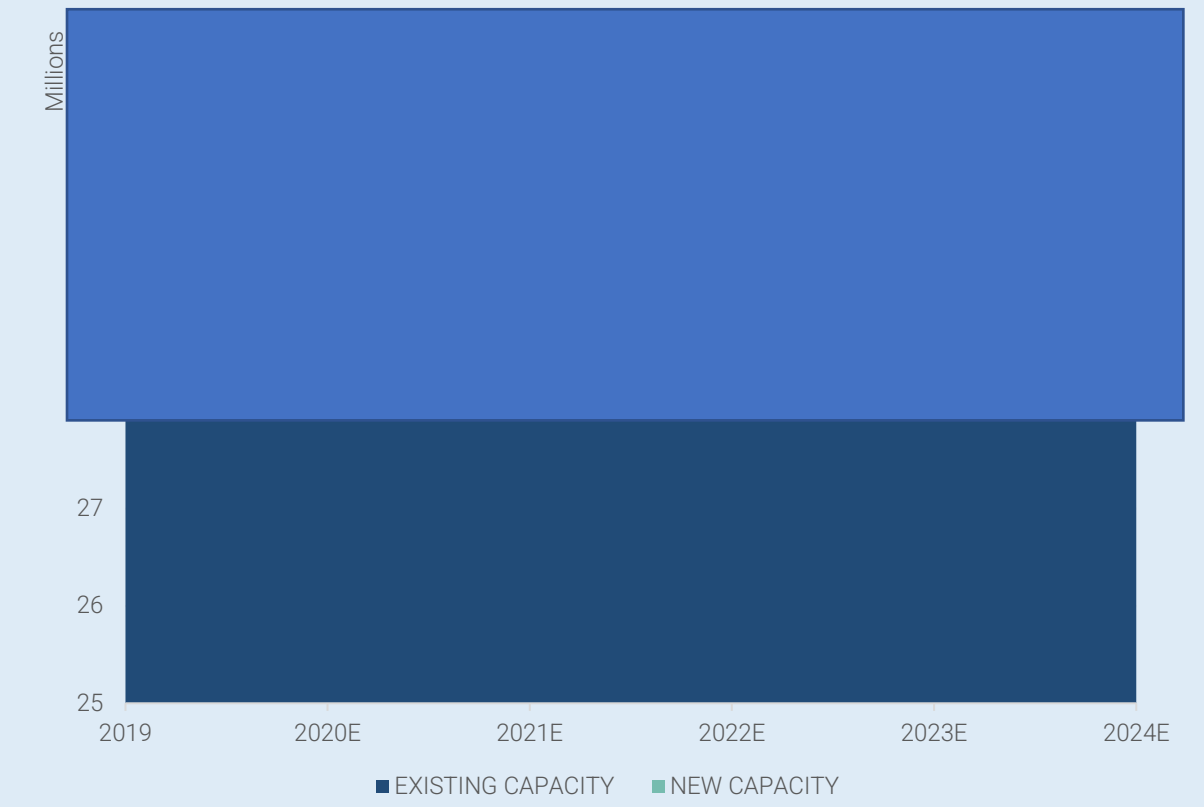
Source: CemBR CGC™

The above figure shows that the majority of cement capacity in France is still in the hands of [redacted] of the total grey cement milling capacity.

4.4 Projected Capacity Additions

Although the country is currently in a position of [redacted] within the cement industry (ca. [redacted] cement utilization rate in 2019), there are still plans to increase capacity with new plants under construction. These additions are small and fragmented and can be argued that are something specialized [redacted]

FIGURE: GREY CEMENT PROJECTED SUPPLY (2019-2024E)



Source: CemBR CGC™

The above graph reflects the grey cement milling capacity of current plants (existing capacity) to which the expected grey cement milling capacity of each project is added at their respective year of commissioning.

A total of [redacted] million tonnes of new cement milling capacity is projected by the end of [redacted] as follows:

[redacted]

[redacted]

From the perspective of clinker capacity, [redacted] is building a new [redacted] clinker kiln at its [redacted] cement plant that is expected to be commissioned during [redacted]. When the new kiln becomes operational, the [redacted] long dry kilns dating from [redacted] will be mothballed. This modernization project is not expected to have any impact on cement capacity.

If all these projects are completed as expected, the total grey cement milling capacity will rise from [redacted] million tonnes to [redacted] million tonnes by 2024.

4.5 GGBFS Plant Data

France currently has six GGBFS grinding plants, having an estimated total capacity of [redacted] million tonnes. Until 2018, the GGBFS grinding capacity has been constant at [redacted] million tonnes. In 2018, [redacted] France commissioned a [redacted] million tonnes grinding unit in [redacted]

The names, location, nameplate capacity and ownership of these plants are provided in the table below:

FIGURE: LIST OF GGBFS PLANTS AND COMPANIES (2019)

LOCAL COMPANY NAME	LOCATION	TYPE OF PLANT	TYPE OF PRODUCT	GRINDING CAPACITY	ULTIMATE OWNERSHIP
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Source: CemBR CGC™

FIGURE: MAP OF GGBFS PLANTS BY COMPANY NAME (2019)

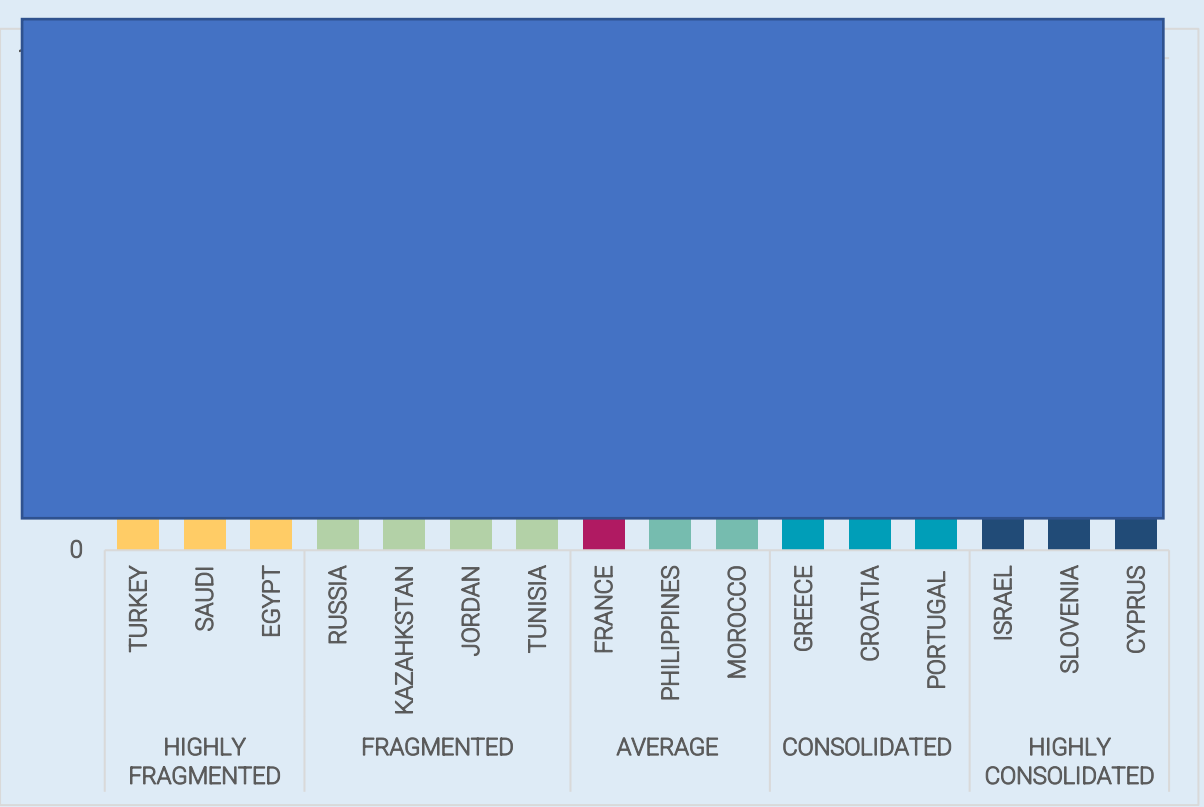
Source: CemBR CGC™

5.0 INDUSTRY STRUCTURE & DYNAMICS

5.1 Industry Consolidation

The Industry Consolidation Index of France is currently at around [redacted] This Index is an indication of the fragmentation of the industry. The below graph provides some indication of global Consolidation Indices and their respective groups.

FIGURE: CONSOLIDATION INDEX



Source: CemBR CGC™

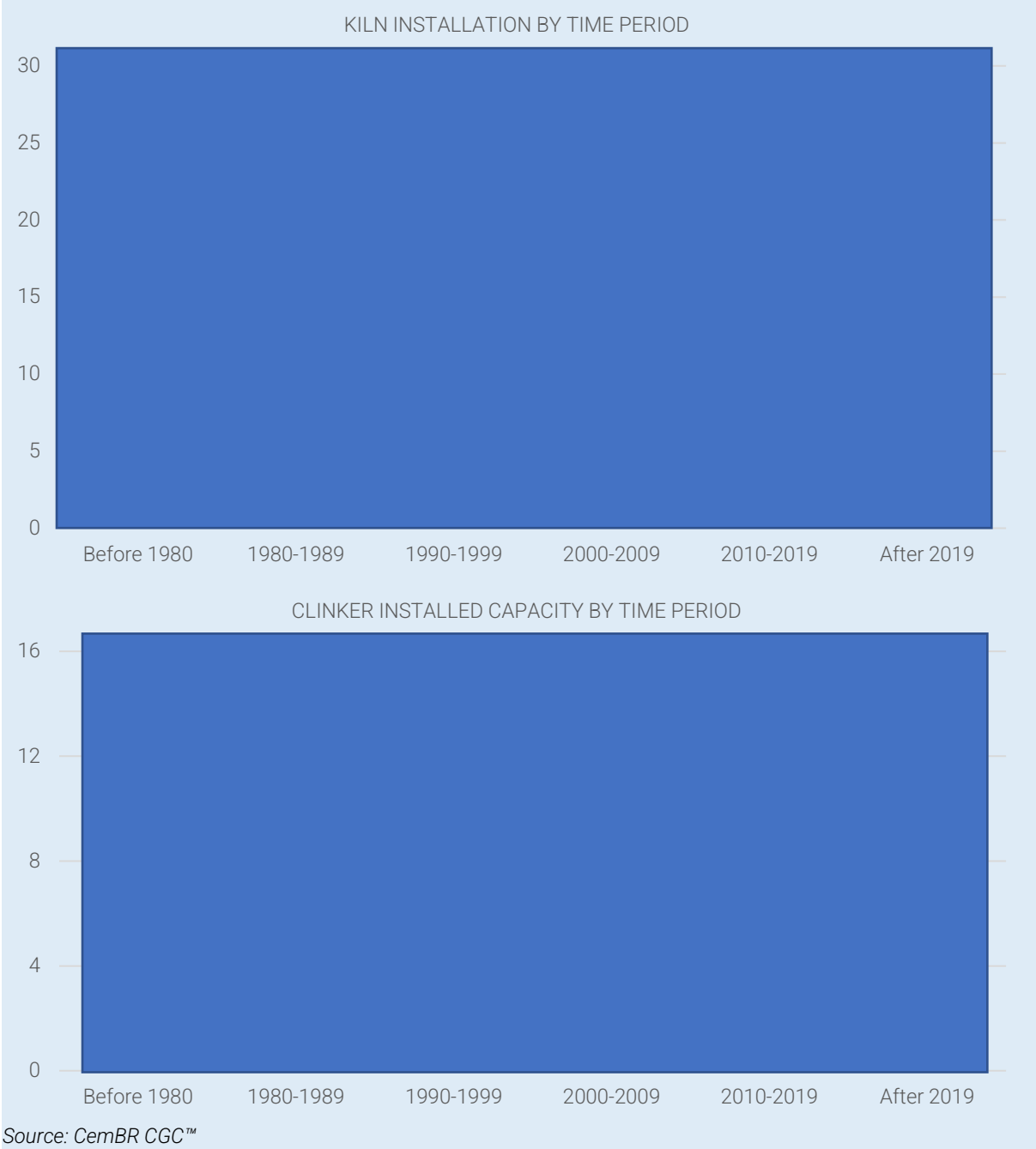
CemBR uses a variant of the Herfindahl-Hirschman index (HHI). How is HHI calculated by CemBR: In theory, the HHI calculation is based on estimated market shares of all the participants in each market. This would also have to include importers of cement. However, CemBR has found that market share estimations are highly unreliable and often inaccurate, reflecting the views and opinions of the various corporates operating in a market. As a proxy of market concentration, CemBR is therefore using the indigenous capacity of the industry. This is a reasonable approach as, in the long term, market shares reflect capacity in each market. The range for HHI is between 0 (perfect competition) and 10,000 (monopoly). HHI is considered for each market and then compared to other markets in the report. This analysis is subject to the overall Disclaimers. of this report.

As the figure above suggests, the French cement industry is [redacted] in terms of consolidation. This reflects the fact that the market is made up of a combination of international companies, each owning multiple plants, and a few smaller companies, each operating a single plant.

5.2 Production Overview

The figures below show the number of kilns installed over time and installed clinker capacity over the same time periods.

FIGURE: KILN AND GREY CLINKER INSTALLED CAPACITY (MT) BY TIME PERIOD

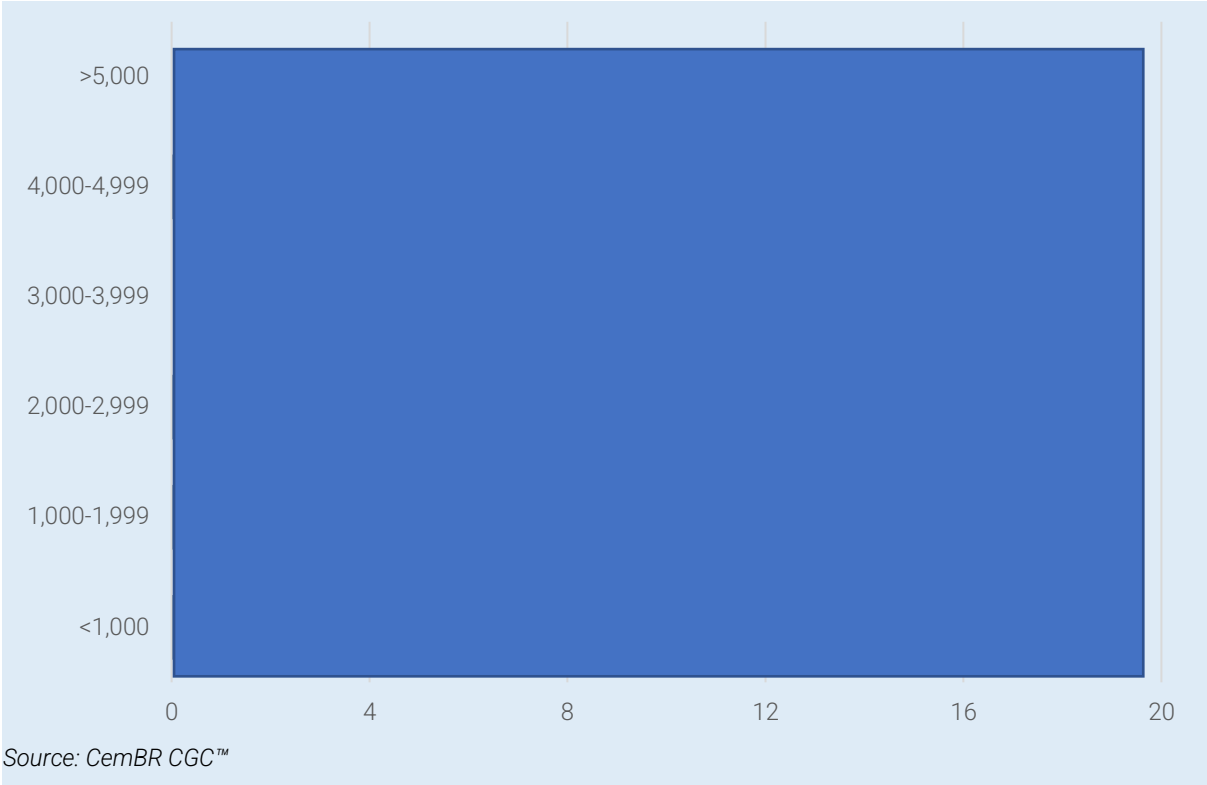


Source: CemBR CGC™

The French cement industry's current operating assets are almost all built before [redacted] The only exception is [redacted] plant that was commissioned in 1993. However, it is important to note that this analysis takes into account the year of the initial instalment for each kiln. It is true that most of these kilns have been modernized and optimized to some degree during the years, especially from the perspective of fuel usage, sustainability, and emissions. Nevertheless, France remains among the few

cement industries worldwide that avoided an expansion spree in its recent history. This may be the result of the challenges brought by the recent crises of the European markets (e.g. 2008 financial crisis, 2012 Eurozone debt crisis, etc.).

FIGURE: NUMBER OF KILNS BY CAPACITY RANGE



Source: CemBR CGC™

Another particularity of the French cement industry resides in its rather [redacted] kiln size. This is partly linked to the historical development timeline of the industry, considering that average kiln size has been increasing over time globally.

5.3 Technical Performance Issues

Similar to other EU ETS countries, the technology of the kilns defines the following five categories of cement plants:

- Wet process: the antiquated wet process is the highest for fuel consumption and has been largely phased out in the EU, accounting for less than 4% of the current capacity. [redacted]
- Semi dry/semi wet process: the semi dry/semi wet process kiln types also have a low share, approximately 8% in the EU. Fuel consumption for this process type is variable, but higher than the one of the more modern preheater/precalciner kilns. From this perspective, France [redacted]
- Dry kilns with no preheater/precalciner: these are often of the long dry type; approximately 5% of current capacity in the EU. The remaining kilns of this type

in France [redacted]

- [redacted]**Dry process kilns with preheater**: the great majority of integrated plants built between the mid-60s and the early 80s were using kilns of the preheater type. More fuel efficient than the wet process, but with less appropriate technology for the use of poor-quality alternative fuels. Approximately [redacted] of EU kiln capacity is of this process. [redacted] in France are all [redacted]
- **Dry process kiln with preheater and precalciners**: the precalciner kiln plants offer low fuel consumption but are not significantly more fuel efficient than the equivalent preheater kilns. Precalciners are however well adapted to use the poorer quality, high moisture content and larger size fraction alternative fuels. Approximately [redacted] of EU capacity is this process and virtually all new plants and modifications to existing plants have employed this technology since the 1980s. France benefits [redacted]

The table below shows the associated technical characteristics for each type of technology, including fuel consumption.

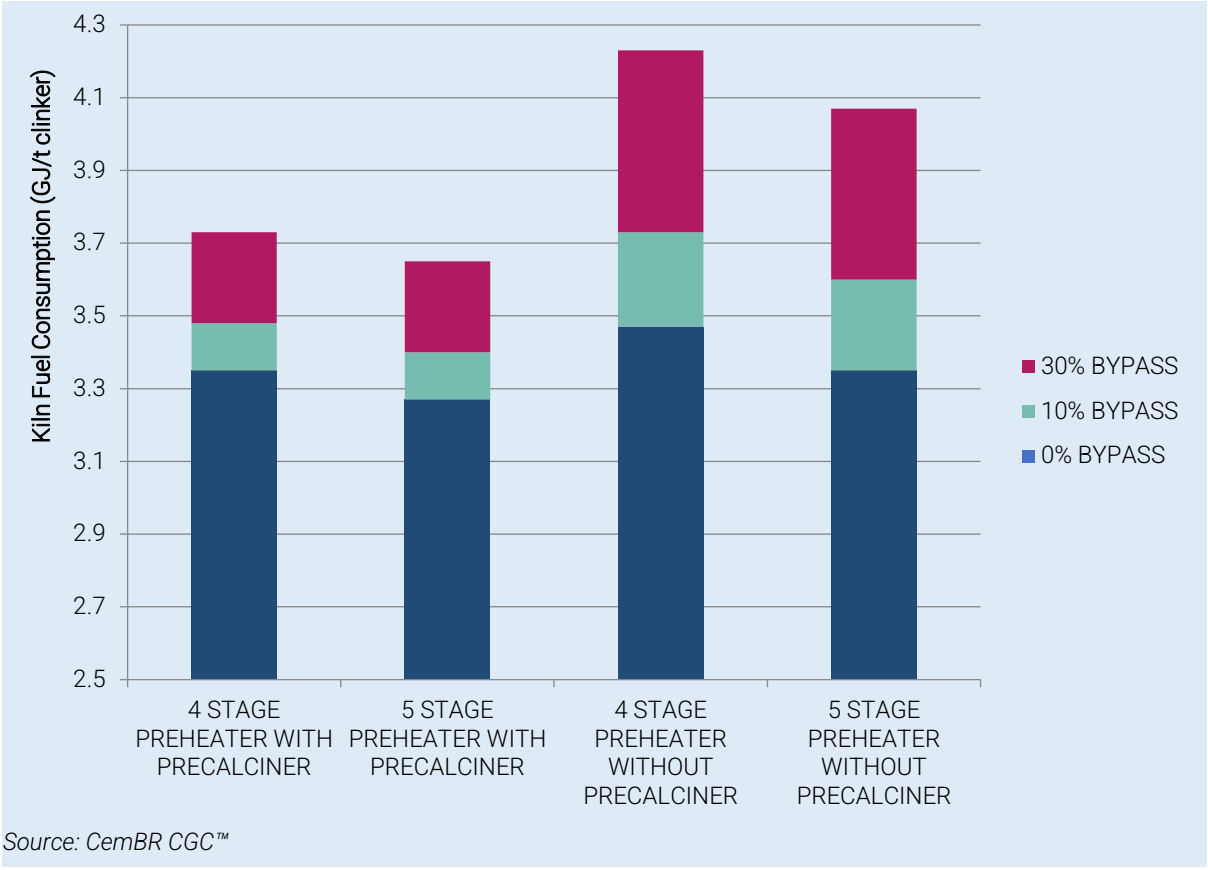
FIGURE: TECHNICAL CHARACTERISTICS OF CEMENT PLANT TECHNOLOGIES

WET PROCESS TECHNOLOGY	
KILN CAPACITY 200 – 3,000 TPD CLINKER	KILN TUBE 3M – 7M (DIAMETER) X 100M – 220M (LENGTH)
KILN FEED MOISTURE 25 – 45% H_2O	KILN FUEL CONSUMPTION 4,500 – 7,500 MJ/T CLINKER (1,080 – 1,800 KCAL/KG CLINKER)
SEMI DRY PROCESS TECHNOLOGY	
KILN CAPACITY 500 – 2,000 TPD CLINKER	KILN TUBE 3.5M – 5M (DIAMETER) X 55M – 75M (LENGTH)
KILN FEED MOISTURE 12 – 17% H_2O	KILN FUEL CONSUMPTION 3,300 – 4,200 MJ/T CLINKER (800 – 1,000 KCAL/KG CLINKER)
DRY PROCESS – 4/5 STAGE PREHEATER	
KILN CAPACITY 500 – 4,500 TPD CLINKER	KILN TUBE 3M – 6M (DIAMETER) X 40M – 105M (LENGTH)
KILN FEED MOISTURE 0.5% H_2O	KILN FUEL CONSUMPTION 3,000 – 4,200 MJ/T CLINKER (710 – 1,000 KCAL/KG CLINKER)
DRY PROCESS – 4/5 STAGE PRECALCINER	
KILN CAPACITY 1,500 – 13,000 TPD CLINKER	KILN TUBE 3.5M – 6M (DIAMETER) X 60M – 105M (LENGTH)
KILN FEED MOISTURE 0.5% H_2O	KILN FUEL CONSUMPTION 2,900 – 4,000 MJ/T CLINKER (690 – 950 KCAL/KG CLINKER)

Source: CemBR Research and Analysis

The figure below also shows the impact on fuel consumption between different stages of preheaters with or without precalciners.

FIGURE: FUEL CONSUMPTION FOR DIFFERENT PREHEATER STAGES

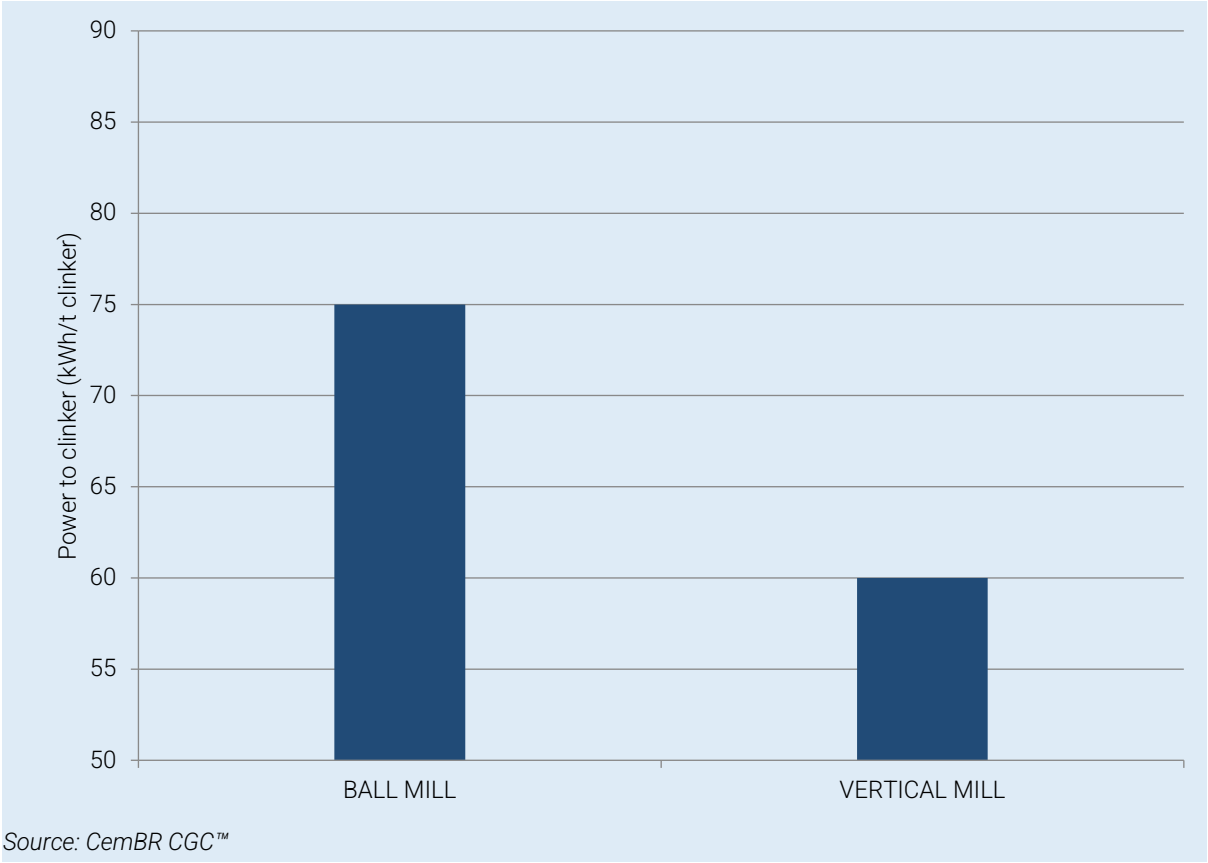


Source: CemBR CGC™

In terms of power consumption, the main differentials between the plants will be the selection of the raw and cement materials grinding system. For raw milling, the older plants have installed the higher power consumption ball mills compared to the newer plants that use lower energy consumption vertical mills. Plants that were built after 1980 will generally use vertical raw milling technology as opposed to the ball mills frequently installed before that date. The figure below shows the difference in power consumption for plants using ball mills and vertical mills for raw materials grinding.

The other main performance differential for power consumption between the plants will be the selection of the cement materials grinding system. Since 2000 the choices for cement grinding have diversified from solely ball mills to include options such as roller presses, vertical mills and the Horomill. Of these, the most favoured has become the vertical mill.

FIGURE: RAW MILLING: BALL V VERTICAL MILLS ENERGY CONSUMPTION



Source: CemBR CGC™

Finally, the older plants are less likely to have modern electrical innovations such as variable speed drives on fans, modern low energy motors etc., which could lead to an overall higher power consumption compared to the more modern plants.

6.0 DEMAND PROJECTIONS TO 2024

Macroeconomic projections indicate a sharp downturn in France in 2020, a less strong rebound in 2021 and a potential return to just above historical trend growth thereafter. Overall, economic output is thus not expected to reach its 2019 level before 2024 the earliest. However, no major institutions (e.g. IMF, World Bank) have published new forecasts for the 2022-2024. After the onset of the COVID-19 crisis, the IMF only provided an estimate for 2020 and 2021 in their April 2020 release. In the June update, the previous estimate for 2020 was reduced further with 2021 failing to keep up so it can reach a V-shaped recovery (the figures below for 2020 and 2021 are from IMF's June 2020 update). It is expected that the IMF will soon publish a revised forecast for the 2022-2024 period, the expectations being that growth rates may be revised upwards.

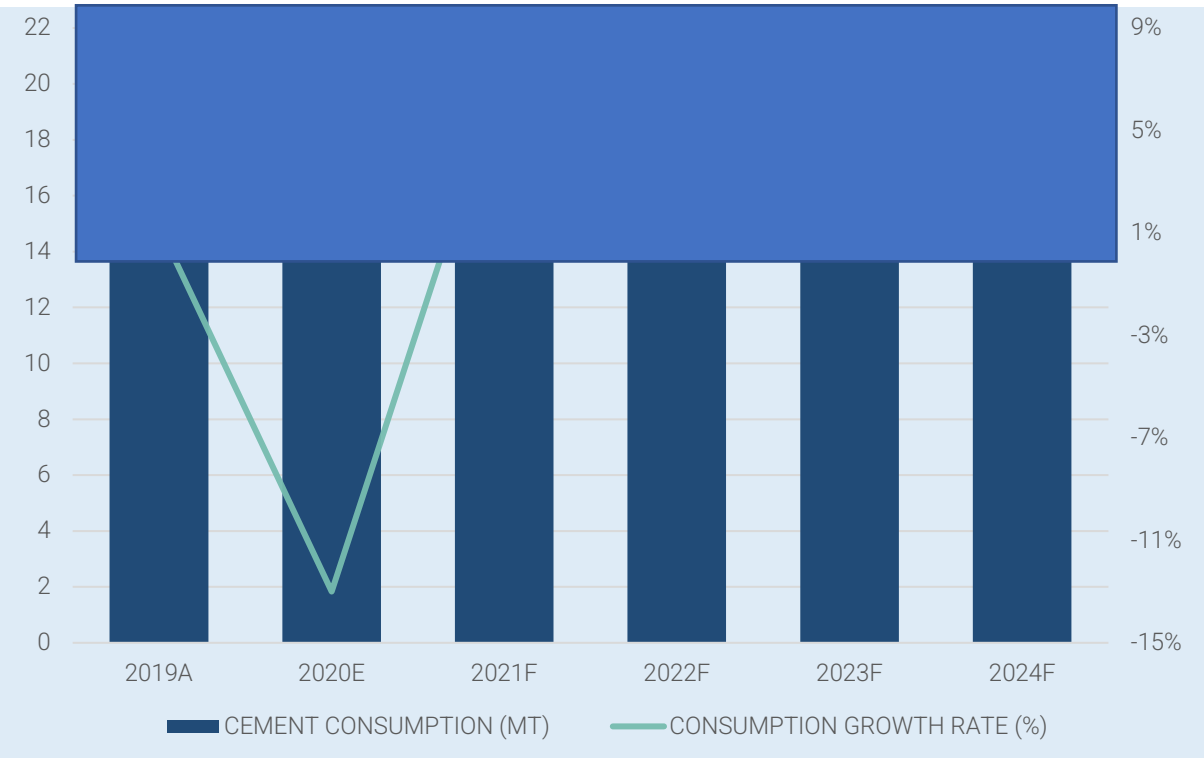
FIGURE: REAL GDP GROWTH RATES (2019-2024)

INDICATOR	2019	2020	2021	2022	2023	2024
REAL GDP GROWTH RATE (%)	1.3%	-12.5%	7.3%	1.4%	1.4%	1.4%

Source: IMF

Based on the performance of the market in the last ten years, the projected demand for France going forward is expected to look as follows:

FIGURE: PROJECTED CONSUMPTION OF CEMENT (2019-2024)



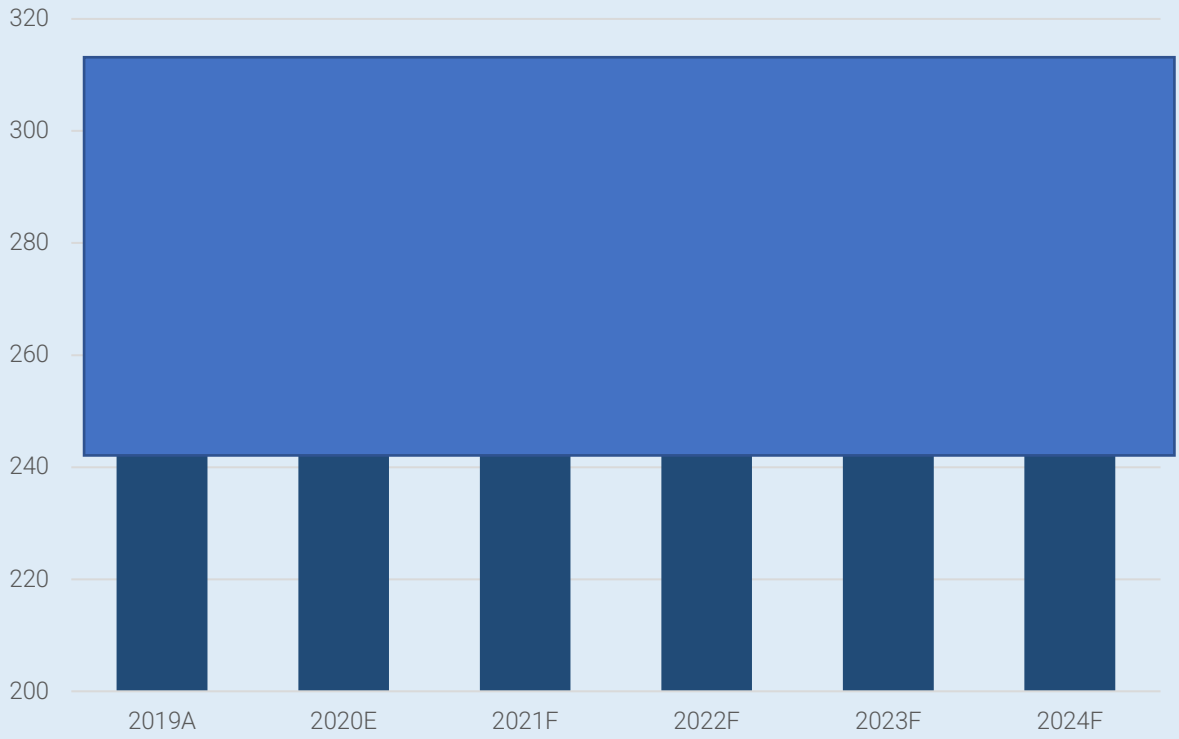
INDICATOR	2019A	2020E	2021F	2022F	2023F	2024F
CEMENT DEMAND (MT)						
GROWTH RATE (%)						

Source: CemBR CGC™

The above analysis shows that cement demand is set to follow the pace of the economy for 2020 and 2021 but rise at a faster rate than GDP thereafter (as mentioned above

CemBR expects that the real GDP forecast will be revised upwards by IMF for the out years). The base case scenario therefore projects that cement demand will be able to reach 2019 levels by 2024. The Government's fiscal stimulus, which focuses on infrastructure and housing development, may help improve demand above the forecasted growth rate, especially if such plans are expanded. Also, if the downturn of the economy in 2020 is lower than projected (local French institutions expect the economy to decline at less than 11% in 2020) and growth is stronger in 2021 and following years, cement demand growth may be higher than the above forecast.

FIGURE: PER CAPITA PROJECTIONS IN KG PER PERSON (2019-2024)



Source: CemBR CGC™

This provides a "reality check" of the market's projections for demand at the end of the forecasting period. All data is calculated on the same basis using CemBR demand projections and World Bank population forecasts. This metric is combined with the Cement Economic Curve to assess the validity of the projections going forward.

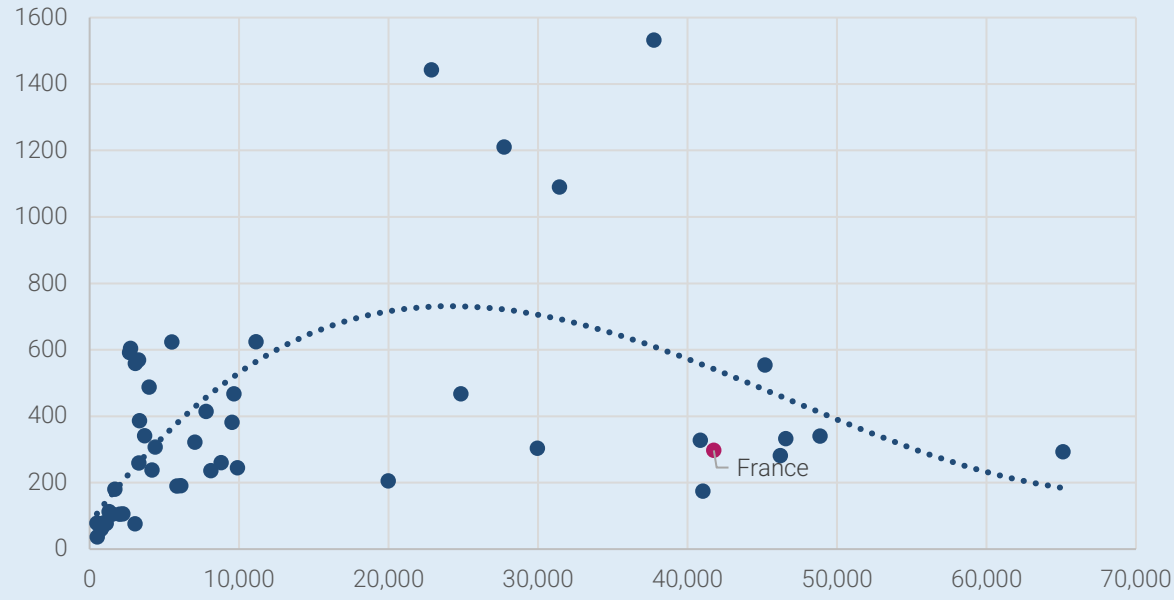
Per capita cement consumption for 2020 is projected to fall to [redacted], which is slightly lower than the [redacted]. Thereafter per capita consumption is expected to grow and reach [redacted], at par with the level reached in [redacted]

6.1 Reality Check

6.1.1 Is the demand scenario realistic?

CemBR uses the Cement Economic Curve (per capita consumption against GDP per capita in US$) as a reality check for future cement consumption.

FIGURE: CEMENT ECONOMIC CURVE



Source: CemBR CGC™

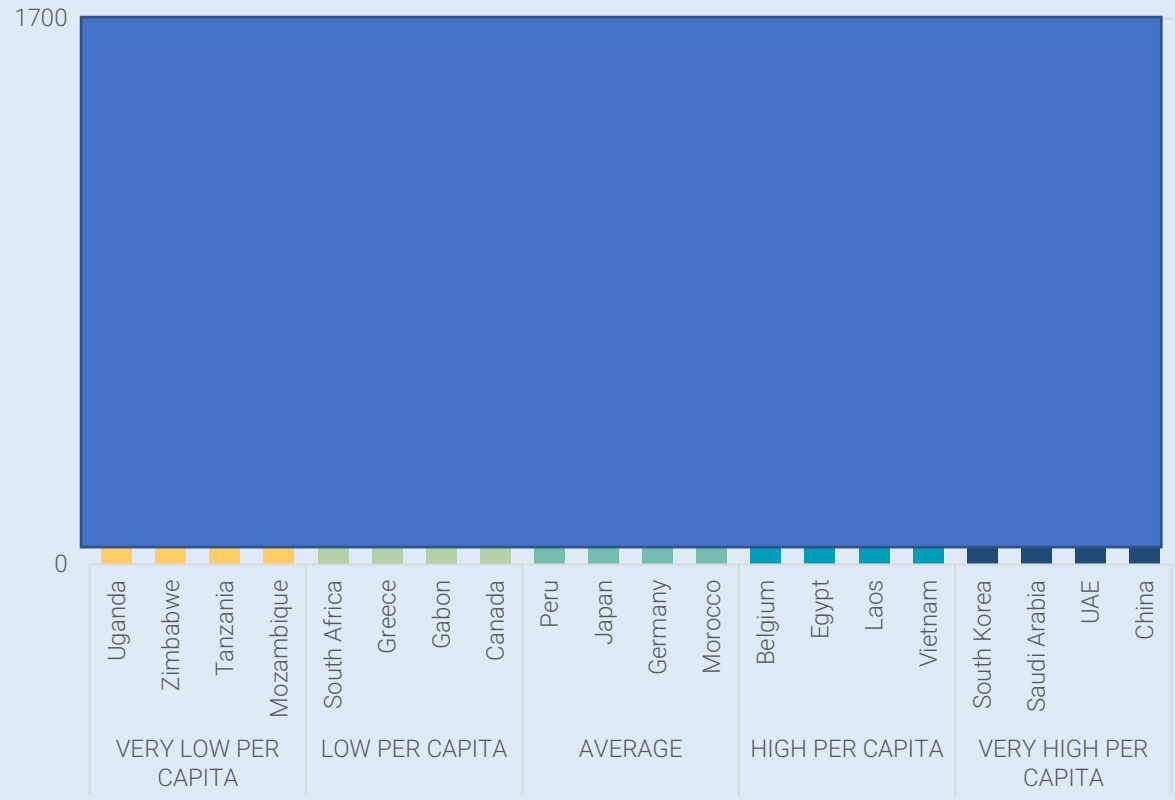
The Cement Economic Curve is a well-established metric in the global cement sector. It depicts per capita consumption vs per capita GDP. The theory behind this graph is that as markets mature (GDP per capita increases) the per capita consumption begins to plateau and eventually drops.

It indicates that markets below the graph line could increase their per capita consumption whereas the markets above the line could see a reduction. This metric has several limitations, but it is useful as it provides a "trend" and a "feel" as to where each market is positioned.

The above figure shows that France, as a developed market with high GDP per capita, is past the plateau part of the curve where per capita consumption starts falling even as GDP per capita rises. Moreover, France's per capita consumption is well below the declining curve. This indicates that even if GDP per capita were to rise significantly, to US$50,000 for example, cement consumption per capita would not change in a considerable manner. Such a GDP per capita growth scenario is unlikely however, given the demographic and structural challenges of the economy. Reduced Government budget flexibility also means that growth of cement consumption per capita from Government funded projects is limited, even at current levels of GDP per capita. The only possible route for growth of cement consumption per capita is through incentives and encouragement of private investment.

France reports an average cement per capita consumption overall when compared to other markets worldwide. According to the graph below, France is at the low end of the 'average per capita' category.

FIGURE: PER CAPITA CEMENT CONSUMPTION - GLOBAL BENCHMARKS

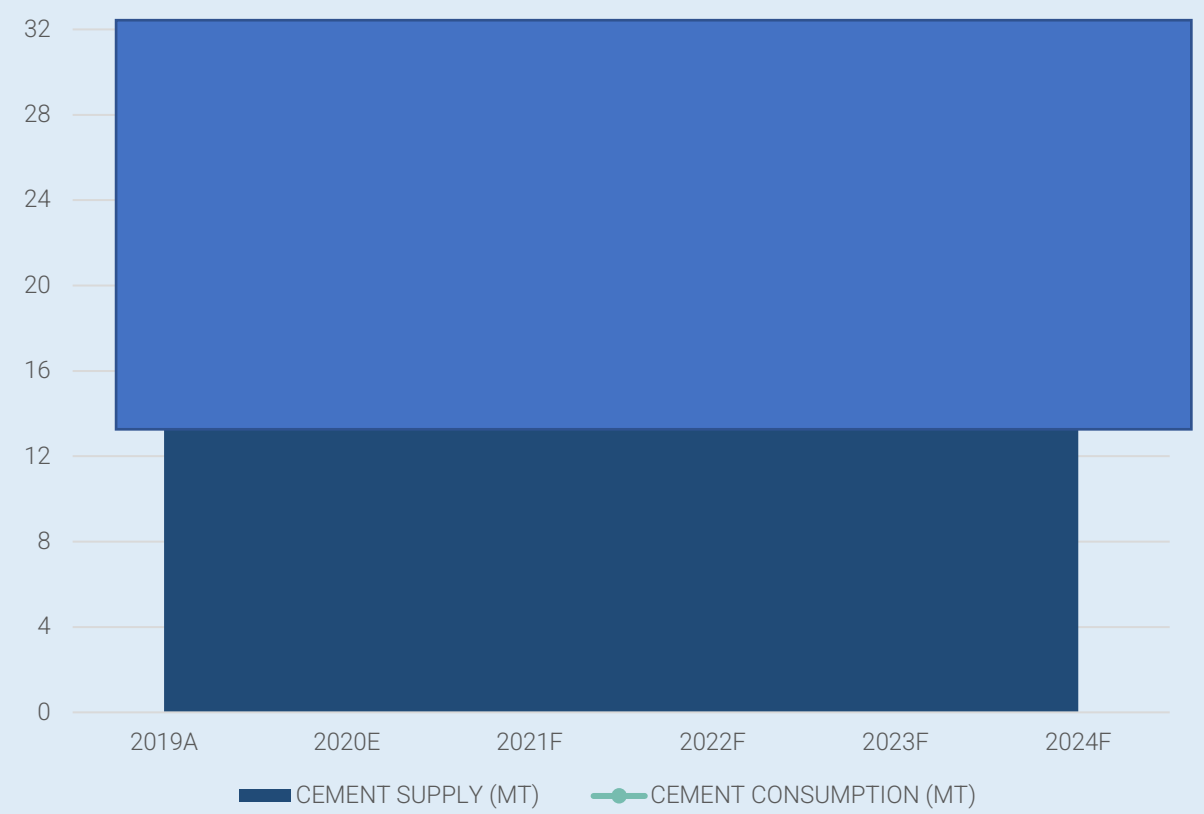


Source: CemBR CGC™

7.0 SUPPLY – DEMAND CONSIDERATIONS TO 2024

Using the above developed consumption scenario, the supply – demand balance for France going forward is expected to look as follows:

FIGURE: SUPPLY-DEMAND PROJECTIONS (TO 2024)



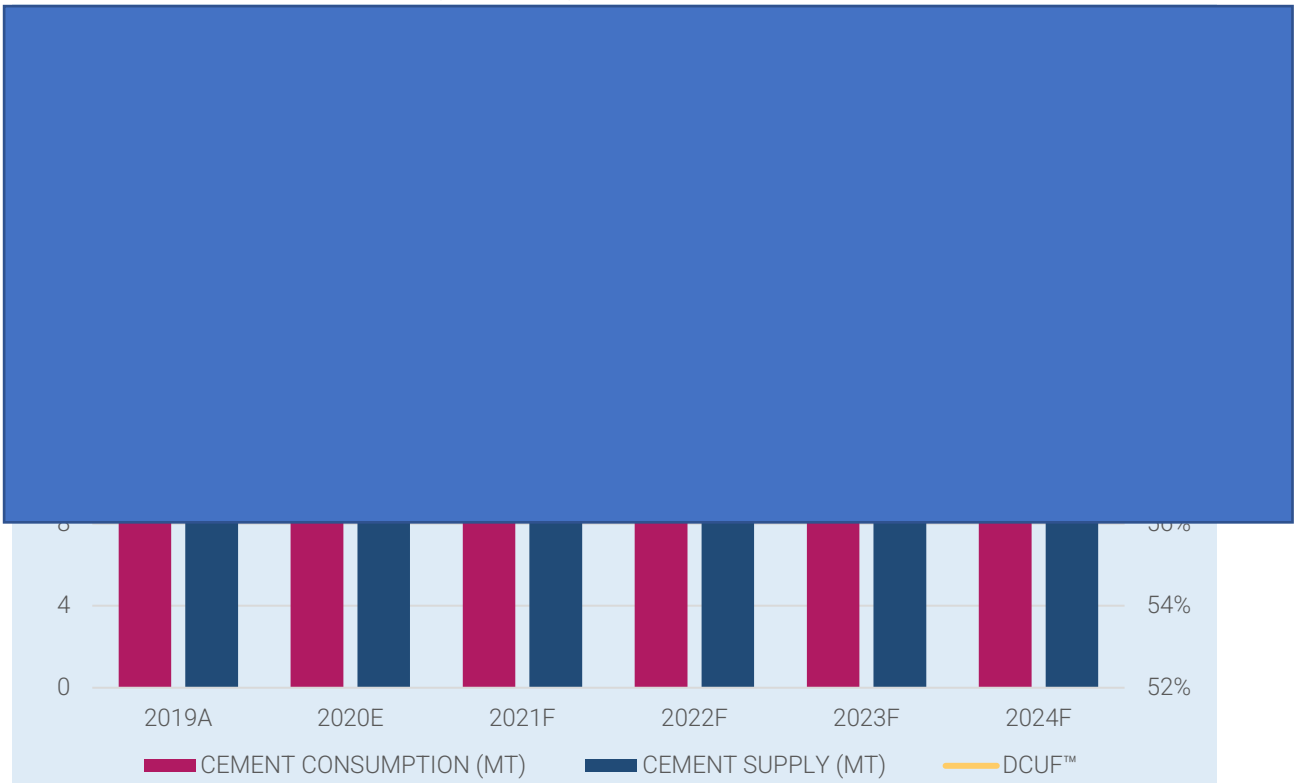
Source: CemBR CGC™

It must be noted that the above Supply – Demand balance is derived by examining the domestic consumption and the domestic total cement milling capacity. In markets with certain specific characteristics for e.g. the existence of independent grinding plants, the oversizing of mills at integrated plants (i.e. actual milling capacity above clinker-based cement capacity) and an active international trade on clinker (particularly exports of clinker), the actual clinker utilisation rate may be significantly different to the cement milling capacity utilisation rate. CemBR uses the cement milling capacity for this indicator as it is consistent with all other data points of this report.

7.1 Supply – Demand Balance and DCUF™

CemBR has introduced the Domestic Capacity Utilisation Factor (DCUF™) metric to assess an industry's propensity to export/ import. In the forecasting period the relevant figures for France are as follows:

FIGURE: S-D BALANCE AND DCUF™ (2019-2024)



DCUF™ is a metric introduced by CemBR. Although it is a simple ratio of domestic demand over domestic nameplate capacity (excluding trade with other markets), it provides a wealth of intuitive insights into a cement market. Examined alone, it provides an indication of the propensity and need of a market to export / import. In consideration with the Supply – Demand balance it would provide useful insights on pricing behaviour going forward. This metric is subject to the overall Disclaimers of this report.

INDICATOR	2019A	2020E	2021F	2022F	2023F	2024F
CEMENT CONSUMPTION (MT)	[redacted]					
CEMENT SUPPLY (MT)	[redacted]					
DCUF™	[redacted]					

Source: CemBR CGC™

Cement supply is expected to increase slightly in the next five years whereas consumption is expected to be flat overall. Because of this, the country's DCUF™ is set to [redacted]. Consequently, overcapacity in the sector is expected to continue for the foreseeable future at least at the level of cement milling capacity. In the current year DCUF™ is expected [redacted]

8.0 GENERAL CONSIDERATIONS AND CONCLUSIONS

Supply – Demand Balance

France's supply – demand balance in the next five years is expected to [redacted]. Demand is projected [redacted] and only recover to 2019 levels at [redacted]. There may be an upside to demand forecasts if the 2020 downturn is not as deep as is currently forecasted and if the Government expands its housing development and infrastructure plans.

The new capacity additions in the following years will slightly [redacted] at cement milling level. At least in the immediate period, net imports of cement are expected [redacted] given the subdued demand, but also the temporary lockdown that transcended international borders.

Propensity and Ability to Export

France's DCUF™ is at low levels for the foreseeable future. Even if France's propensity to export would be high in theory, in practice its exporting potential is somewhat limited. Nearly all exports are currently absorbed by other large EU countries, mainly Germany. These are all mature markets, facing similar demographic and growth challenges as France, so the scope to expand exports to these destinations is limited. Even more pressing, the older, somewhat outdated technology of the French kilns limits its desire to export considering the hefty carbon penalty to produce each tonne of clinker at a level of around [redacted] of CO_2 per tonne. Within the EU ETS territory, the countries forced to export at high volumes were those that were required to reach a level of clinker production that would allow them to keep their CO_2 allowances. France is not in this situation.

Industry Profitability

The EU ETS system will become even more pressing for the French cement market, especially after the implementation of Phase IV (currently delayed – it was supposed to start in 2020). With the gap between best-in-class CO_2 per tonne and the actual levels reached by the French producers further increasing, the companies will have to invest heavily into new and greener technologies or will face a challenging future.

Nevertheless, the structure of the industry coupled with the high production costs and the relevant legislation has sheltered France from international competition in a significant way as prices were set at high levels (it is estimated that France is one of the highest prices markets in Europe). This may change as new entrants enter the market to take advantage of these prices. In the past, the industry was in the habit of acquiring new entrants (mainly grinding facilities).

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