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The Mineral Industry of France

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In 2016, France's real gross domestic product (GDP) increased by about 1.2% compared with that of the previous year, and its GDP in 2016 was $2.81 trillion. The French economy is very centralized and highly developed, and the majority of its GDP was composed of activities in the services industry. Household consumption increased by 2.2%. The Government's expenditures in 2016 were equivalent to 56.4% of the country's GDP, which was a decrease of about 0.3% (revised) compared with expenditures of the previous year. The Government's budget deficit was $81 billion, or 3.4% of the GDP; the budget deficit contributed to the increase in the country's national debt, which in 2016 was equivalent to 96.3% of the GDP (Institut National de la Statistique et des Études Économiques, 2017a; 2018b, p. 110, 124, 125; World Bank, The, 2018).

France no longer mined metals; deposits of the past that were important for the country's economy were no longer economically viable for mining. The country was a significant processor of raw mineral materials, including such metals as aluminum, cobalt, pig iron, lead, nickel, and zinc, and it was a manufacturer and consumer of industrial durable goods (table 1).

Minerals in the National Economy

The output value of France's industrial sector—not including construction—amounted to $944 billion[1] in 2016, which represented an increase of 2.6% compared with that of 2015. The construction sector in France contracted by about 0.1% and was valued at $290 billion in 2016. The contribution of the mineral industry to the French economy (not counting overseas departments, which are treated in separate chapters) was small.

The value of industry (as defined by the Institut National de la Statistique et des Études Économiques—that is, mining and quarrying production, energy production, water, and waste management and remediation) amounted to $154 billion in 2016, which was an increase of 0.8% compared with that of 2015. Refining of petroleum products and the manufacture of coke was valued at $35 billion, which represented a decrease of 1.3% compared with that of 2015 (Institut National de la Statistique et des Études Économiques, 2017b; 2018a; 2018b, p. 113).

Government Policies and Programs

The French mining code was last updated in 2011; however, it was not until January 25, 2014, that these changes came into effect. Most of the changes were aimed at simplifying the acquisition of exploration licenses and licenses for the development of future projects. The Ministry of Ecology and Sustainable Development and Energy was responsible for overseeing and regulating such environmental issues as agricultural runoff, air pollution from industrial and vehicle emissions, forest damage from acid rain, and water pollution from mining, mineral processing, and urban waste (Legifrance, 2015; Minéralinfo, 2018).

Production

In 2016, the mineral commodities that had significant increases in the amount of production were crude gypsum (including anhydrite), for which production increased by 106%; kaolin clay (marketable), 7%; and crude granite, 12%. The mineral commodities that had significant decreases in the amount of production were crude marble (including travertine), for which production decreased by 90%; dolomite, 41%; refined nickel, 34%; secondary alumina metal, 21%; silicomanganese, 16%; zinc (smelter production), 12%; refinery production of cobalt (Co content) and salt (all resources), 11% each; and ferromanganese and crude petroleum, 7% each. Industrial minerals—in particular, construction-industry-related materials—accounted for many of the reported significant decreases in production; the slowdown in the construction industry partly explained these decreases, as many of the construction-related industrial minerals were produced for domestic consumption. Data on mineral production are in table 1.

Mineral Trade

In 2016, France exported $694 billion in goods and imported $740 billion, resulting in a negative trade balance of $46 billion. Exports of the mining, energy, and water sector were valued at $9 billion, and imports of this sector were valued at $32 billion. The coke and refined petroleum products sector's exports were valued at $10 billion, and the sector's imports were valued at $18 billion, creating a negative balance of $8 billion (Institut National de la Statistique et des Études Économiques, 2018b, p. 135).

The United States was a leading non-European Union trading partner of France, and in 2016, the United States exported about $31.1 billion worth of goods and services to France. The most significant of these exports were, in order by value, fuel oil valued at $1.3 billion; petroleum products, $567 million; nonferrous metals, $418 million; gem diamond, $373 million; natural gas liquids, $222 million; crude petroleum, $122 million; metallurgical-grade coal, $99 million; aluminum and alumina, $96 million; iron and steel products, $91 million; iron and steel mill products, $43 million; and precious metals, $40 million (U.S. Census Bureau, 2017a).

The most significant United States imports from France in 2016 were, in order by value, petroleum products valued at $675 million; iron and steel mill products, $360 million; fuel oil, $290 million; gemstones, $161 million; bauxite and aluminum, $166 million; gem diamond, $101 million; iron and steel products, $91 million; nonferrous metals, $65 million; stone,

[1]Where necessary, values have been converted from euro area euros (EUR) to U.S. dollars (US$) at an annual average exchange rate of EUR0.94=US$1.00 for 2016.

sand, and cement, $56 million; and precious metals, $46 million (U.S. Census Bureau, 2017b).

Structure of the Mineral Industry

The Bureau de Recherches Géologiques et Minières (BRGM) is the Government agency that performs geologic and mineral research in France and abroad; the headquarters are located in Orleans. France had several leading mineral-producing companies with operations in France and abroad, among which were Eramet S.A. (Eramet), Imerys Group, Rio Tinto Ltd., and Total S.A. Table 2 is a list of major mineral industry facilities.

Commodity Review

Metals

Ferroalloys (Silicon).—In December 2016, the merger of Globe Specialty Metals Inc. and FerroAtlántica was completed and resulted in the new company, Ferroglobe Plc. Ferroglobe wholly owned six ferroalloy plants—Anglefort, in the Province of l'Ain; Château-Feuillet and Montricher, in the Province of Savoie; Laudun, in the Province of Gard; Les Clavaux, in the Province of l´Isere; and Pierrefitte, in the Province of Hautes Pyrenees. These companies were operated by FerroPem S.A., which was a subsidiary of Ferroglobe (Piwi, 2016).

Iron and Steel.—In 2016, ArcelorMittal Group of Luxembourg was the leading steel company in France. ArcelorMittal designed and manufactured advanced steel products in France, and its plants had become the company's leading production centers for steel used in the automotive and energy sectors. The company's largest global research and development center was located in Maizieres, France. In 2016, steel shipments decreased by 1.1% owing to production outages at the Fos-sur-Mer plant. ArcelorMittal had invested more than $2.7 billion since 2006 in the production of steel in France and stated that it would continue to make regular investments at all its sites. As of December 31, 2016, ArcelorMittal's plant at Florange, which employed 2,200 people, already had received $148 million in investments (ArcelorMittal, 2014; 2016, p. 84, 125).

Nickel.—Eramet was the sole producer of nickel metal in France. Eramet owned and operated the Sandouville plant in Le Havre. In August 2016, Eramet ended the production of nickel matte at the Doniambo plant of the Bessemer unit in New Caledonia, stating that a European producer would instead supply it with nickel matte to produce ferronickel (Eramet S.A., 2016a; 2016b, p. 12; 2016c).

Industrial Minerals

Gypsum.—In 2016, Placoplatre SA planned to develop an open-cast gypsum quarry at Fort de Vaujours near Paris. The quarry was estimated to contain enough gypsum to supply the Saint-Gobain subsidiary's wallboard plant and the company's other plants in the group for 30 years. Environmental contamination by radioactivity and chemicals was a concern in the region. The site had been used for nuclear testing between the 1950s and the 1990s (Global Gypsum, 2016; Deutsche Welle, 2018).

Mineral Fuels and Other Sources of Energy

Nuclear Energy.—In 2016, the construction of the International Thermonuclear Experimental Reactor (ITER) continued in Cadarche in the Provence-Alpes-Côte d'Azur region. Construction of the project started in 2008 by seven members of the ITER Organization—the United States, China, the European Union, India, Japan, Russia, and the Republic of Korea. The ITER Council endorsed the integrated schedule for the project, which indicated that the test of First Plasma was expected in 2025, and full power fusion, in 2035 (Clercq, 2016; International Thermonuclear Experimental Reactor Organization, 2016).

Outlook

France processes minerals principally for export and, to a smaller degree, for its manufacturing industry. France will likely continue to import much of its ores and concentrates, industrial minerals, and mineral fuels for its manufacturing industry, especially while reforms to the mining code are still pending in the Senate. Nuclear power will continue to be the focus of the Government's energy generation strategy for the near future.

References Cited

ArcelorMittal, 2014, ArcelorMittal announces 700 new jobs in France: ArcelorMittal, September 2. (Accessed January 22, 2017, at http://corporate.arcelormittal.com/news-and-media/news/2014/sep/02-09-2014b).

ArcelorMittal, 2016, Form 20–F: Luxembourg, Luxembourg, ArcelorMittal, 323 p. (Accessed January 29, 2018, at http://annualreview2016.arcelormittal.com/download-centre.)

Clercq, de Geert, 2016, Nuclear fusion reactor ITER's construction accelerates as cost estimate swells: Thomson Reuters, October 7. (Accessed January 29, 2018, at https://www.reuters.com/article/us-france-nuclear-iter/nuclear-fusion-reactor-iters-construction-accelerates-as-cost-estimate-swells-idUSKCN1271BC.)

Deutsche Welle, 2018, French gypsum quarry stokes contamination fears: Deutsche Welle [Bonn, Germany]. (Accessed January 29, 2018, at http://www.dw.com/en/french-gypsum-quarry-stokes-contamination-fears/a-35960249.)

Eramet S.A., 2016a, Our activity: Paris, France, Eramet S.A. (Accessed January 23, 2018, at http://www.eramet.com/nos-activites/extraire-valoriser/le-nickel/notre-activite.)

Eramet S.A., 2016b, Preparing for the future—Annual report 2016: Paris, France, Eramet S.A., 47 p. (Accessed January 23, 2018, at http://www.eramet.com/en/system/files/publications/pdf/ra_eramet_2016_uk.pdf.)

Eramet S.A., 2016c, SLN focuses on SLM® 25 ferronickel production: Paris, France, Eramet S.A., August 16. (Accessed January 23, 2018, at http://www.eramet.com/en/news/sln-focuses-slnr-25-ferronickel-production.)

Global Gypsum, 2016, Nuclear concern raised about Placoplatre plans to mine Fort de Vaujours site: Global Gypsum, October 7. (Accessed January 29, 2018, at http://www.globalgypsum.com/news/item/1241-nuclear-concerns-raised-about-placoplatre-plans-to-mine-fort-de-vaujours-site.)

Institut National de la Statistique et des Études Économiques, 2017a, French GDP increased by 0.6% in Q3 2017: Institut National de la Statistique et des Études Économiques. (Accessed January 8, 2018, at https://www.insee.fr/en/statistiques/3294309.)

Institut National de la Statistique et des Études Économiques, 2017b, Tableaux de la économie Francaise [Tables of the French economy, 2017 edition]: Institut National de la Statistique et des Études Économiques, March 2, 270 p. (Accessed February 21, 2017, at https://www.insee.fr/fr/statistiques/fichier/2587886/TEF17.pdf.)

Institut National de la Statistique et des Études Économiques, 2018a, Annual national accounts base 2010—Total national economy—GFCF—Manufacturing, mining and other industries—Chained base year price (unbalanced): Institut National de la Statistique et des Études Économiques. (Accessed January 17, 2018, at https://www.insee.fr/fr/statistiques/serie/001728779.)
Institut National de la Statistique et des Études Économiques, 2018b, Tableaux de l'économie française [Tables of the French economy]: Institut National de la Statistique et des Études Économiques, 270 p. (Accessed April 12, 2018, at https://www.insee.fr/fr/statistiques/3353488.)
International Thermonuclear Experimental Reactor Organization, 2016, ITER Council endorses updated schedule focused on First Plasma: International Thermonuclear Experimental Reactor Organization press release, June 16, 2 p. (Accessed April 12, 2018, at https://www.iter.org/doc/www/content/com/Lists/list_items/Attachments/688/2016_06__IC-18.pdf.)
Legifrance, 2015, Code minier [Mining code]: Paris, France, Secrétariat Général du Gouvernement database. (Accessed January 26, 2017, at http://www.legifrance.gouv.fr/affichCode.do;jsessionid=.)
Minéralinfo, 2018, Les administrations [Administration]: Minéralinfo. (Accessed January 18, 2018, at http://www.mineralinfo.fr/page/administrations.)
Piwi, 2016, Fusion de Globe Specialty Metals et Grupo FerroAtlantica [Merger of Globe Specialty Metals and Grupo FerroAtlantica]: La Fonderie et Piwi—Le blog de l'amicale AAESFF, January 6. (Accessed January 29, 2018, at http://www.fonderie-piwi.fr/post/2016/01/06/fusion-de-Globe-Specialty-Metals-et-Grupo-FerroAtlantica.)
U.S. Census Bureau, 2017a, U.S. exports to France by 5-digit end-use code 2007-2016: U.S. Census Bureau. (Accessed January 18, 2018, at https://www.census.gov/foreign-trade/statistics/product/enduse/exports/c4279.html.)
U.S. Census Bureau, 2017b, U.S. imports from France by 5-digit end-use code 2007-2016: U.S. Census Bureau. (Accessed January 18, 2018, at https://www.census.gov/foreign-trade/statistics/product/enduse/imports/c4279.html.)
World Bank, The, 2018, GDP (constant 2010 US$): The World Bank. (Accessed January 2, 2018, at https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.)

TABLE 1
FRANCE: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
METALS						
Aluminum:						
Alumina[e]	thousand metric tons	430 [r]	470 [r]	450	300	300
Metal:						
Primary	do.	349	350 [r]	380 [r]	420	425
Secondary	do.	192 [r]	182 [r]	189 [r]	280 [e]	220 [e]
Total		541 [r]	532 [r]	569 [r]	700 [e]	650 [e]
Cobalt, refinery production, Co content		350	308	219	133	119
Indium, refinery production, primary, In content	kilograms	13,000	33,000	43,000	41,000	--
Iron and steel:						
Pig iron	thousand metric tons	9,532	10,276	10,866	10,097	9,724
Products, hot-rolled	do.	13,529	14,716	15,464	14,994	14,319
Raw steel	do.	15,609	15,685	16,143	14,984	14,413
Lead, refinery production, secondary		83,000	71,000	72,000	72,000	70,000
Manganese:						
Ferromanganese	thousand metric tons	101	104	116	146	136
Silicomanganese	do.	69	92	108	98	82
Nickel:						
Nickel matte		56,447	53,015	55,012	53,369	55,227
Unspecified, refined, Ni content		13,200	12,100	8,400	6,500	4,300
Silicon:[e]						
Ferrosilicon	thousand metric tons	63	50	50	35	35
Silicon metal	do.	95	100	100	100	100
Zinc, smelter production		161,000	152,000	171,000	169,000	149,000
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	17,810	18,018	16,400	15,600	15,900
Clay, kaolin, marketable	do.	315	267	317	257	275
Gypsum, including anhydrite, crude	do.	3,685	3,455	3,279	2,027	4,183
Lime, quick and hydrated, dead-burned dolomite	do.	4,000	3,371	2,864	2,504	2,500 [e]
Nitrogen, N content, ammonia	do.	2,644	2,640	2,600	3,297	3,300 [e]
Pumice and related materials, pozzolan, including lapillie		276,000	276,000	276,000	276,000	280,000

See footnotes at end of table.

TABLE 1—Continued
FRANCE: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons, gross weight, unless otherwise specified)

Commodity[2]		2012	2013	2014	2015	2016
INDUSTRIAL MINERALS—Continued						
Salt, all sources	thousand metric tons	5,457	5,893	5,809	5,818	5,185
Stone, sand and gravel:						
Sand and gravel, construction, unspecified	do.	251	261	230	221	223
Sand and gravel, industrial, unspecified	do.	9	9	8	9	9
Silica, mine production, unspecified		8,880,000	8,752,000	7,835,000	8,818,000	9,282,000
Stone, crushed:						
Chalk	thousand metric tons	1,702	2,214	2,677	2,625	2,622
Dolomite	do.	423	647	418	419	248
Granite, crude	do.	233	289	197	217	243
Limestone, agricultural and industrial	do.	10,216	9,721	8,985	9,224	8,924
Stone, dimension:						
Marble, including travertine, crude	do.	150	23	22	173	18
Slate, crude		8,700	7,081	7,000	7,000	7,000 e
Sulfur, natural gas and petroleum, byproduct, S content[e]		650,000	400,000	400,000	400,000	400,000
Talc and related materials, talc, crude[e]	thousand metric tons	420	450	450	450	450
MINERAL FUELS AND RELATED MATERIALS						
Carbon black	thousand metric tons	134,000	105,041	116,863	117,000 e	117,000 e
Natural gas	million cubic meters	538	339	169	170	170 e
Petroleum:						
Crude	thousand 42-gallon barrels	5,949	5,840	5,475	6,000	5,600
Refinery production:						
Distillate fuel oil	do.	194,801	191,260	193,086	196,300 r	196,300 e
Gasoline	do.	100,740	91,615	96,725	98,600 r	98,600 e
Kerosene, including jet fuel	do.	29,930	33,580	28,835	30,100 r	30,100 e
Liquefied petroleum gas	do.	16,973	17,155	17,155	16,800 r	16,800 e
Residential fuel oil	do.	52,962	43,435	41,975	37,700 r	37,700 e
Other	do.	86,578	86,870	87,600	82,400 r	82,400 e
Total		481,984	463,915	465,376	461,900 r	462,000 e

[e]Estimated. [r]Revised. do. Ditto. -- Zero.

[1]Table includes data available through December 12, 2017. All data are reported unless otherwise noted. Estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the commodities listed, antimony, metallurgical coke, diatomite, feldspar, germanium, kyanite, sandstone, and sodium compounds may have been produced in France, but available information was inadequate to make reliable estimates of output.

TABLE 2
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity[e]
Alumina, metallurgical	Alteo Holdings, 100%	Plant at Gardanne	700
Aluminum	Rio Tinto Ltd.	Smelter, Dunkerque	282
Do.	TRIMET Aluminium SE	Saint-Jean-de-Maurienne, Savoie	145
Andalusite	Denain-Anzin Minéraux Réfractaire Céramique	Glomel Mine, Brittany	75
Antimony, metal	Produits Chimiques de Lucette	Plant at Le Genest, Mayeene Department	15
Barite	Barytine de Chaillac	Mine and plant at Chaillac	150
Do.	Société Industrielle du Centre	Mine at Rossigno, Indre Department	100

See footnotes at end of table.

TABLE 2—Continued
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2016

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity[e]
Cement		LafargeHolcim Ltd.	27 plants, the largest of which is at St. Pierre-la-Cour (1,160)	10,000
Do.		Société des Ciment Français (Italcementi S.p.A.)	Nine plants, the largest of which is at Gargenville (1,100)	7,500
Do.		Vicat Group	Montalieu, in the north of the Rhone-Alpes region; Crechy (03) (Allier), near Vichy; La Grave de Peille (Alpes-Maritimes) inland from Nice; Saint-Egreve (Isere), Grenoble area	6,000
Clay, kaolin		Groupe Mineral Harwanne (GMH)	Kaolin d'Arvor Mine, Quessoy	300
Cobalt, metal	metric tons	Société Métallurgique le Nickel (SLN)	Plant at Sandouville, near Le Havre	600
Copper, metal		Compagnie Générale d'Électrolyse du Palais	Electrolytic plant at Palais-sur-Vienne	45
Diatomite		Ceca S.A.	Mines and plants at Riom-les-Montagne and St. Bauzille	100
Feldspar		Denain-Anzin Mineraux S.A. (Imerys Group)	Mine and plant at St. Chely d'Apcher	55
Ferroalloys		Comilog Dunkerque (ERAMET, 100%)	Dunkerque	70
Do.		FerroPem S.A. (Grupo Ferroglobe Plc., 100%)	Anglefort, Province of l'Ain; Chateau-Feuillet and Montricher, Province of Savoie; Laundun, Province of Gard; Les Clavaux, Province of l'Isere; Pierrefitte, Province of Hautes	290
Do.		Glencore Manganese France S.A. (Glencore plc, 100%)	Plant at Dunkerque	140
Gypsum		S.A. de Matériel de Construction	Mine at Taverny	1,500
Indium		Nyrstar S.A.	Plant at Auby	48
Iron and steel, steel:		ArcelorMittal Group	Plants at:	
Crude		do.	Dunkerque	6,700
Rolling mill		do.	Fos-sur-Mer	4,200
Do.		do.	Florange	3,200
Do.		do.	Gandrange, Neuves Maisons	8,400
Mica		Denain-Anzin Minéraux S.A. (Imerys Group)	Mine at Ploemeur, Brittany	160
Natural gas	million cubic meters	Total Group	Gasfield and plant at Lacq	170
Nickel, metal		Eramet S.A.	Plant at Sandouville	16
Nitrogen, N content of ammonia		GPN S.A	Plant at Grandpuits	3
Petroleum:				
Crude	thousand 42-gallon barrels	Total S.A.	Paris Basin oilfields	5,600
Refined	do.	do.	Refineries at Gonfreville and La Mede	156,000
Do.	do.	Petroplus S.A.	Refinery at Petite Couronne	99,750
Do.	do.	Total S.A.	Refinery at Feyzin	42,000
Do.	do.	do.	Refinery at Donges	70,000
Do.	do.	do.	Refinery at Grandpuits	33,600
Do.	do.	Ineos Group Ltd.	Refineries at Lavera	61,250
Do.	do.	Esso S.A.	Refineries at Fos-sur-Mer	21,700
Do.	do.	do.	Refineries at Gravenchon	82,950
Do.	do.	Cie. Rhenane de Raffinage (CRR)	Refinery at Reichstett	28,000
Salt		Compagnie des Salins du Midi et des Salines de l'Est (Salins Group)	Mines and plants at Aigues-Mortes, Dax, Salin-de-Giraud, and Varangeville	2,500
Sulfur		Total S.A.	Byproduct from natural gas, Lacq plant	400
Talc		Talc de Luzenac S.A. (Imerys S.A., 100%)	Trimouns Mine near Ariege, Pyrenees	450
Zinc, metal		Nyrstar S.A.	Plant at Auby	172

[e]Estimated. Do., do. Ditto.