

**THE ITALIAN  
PETROLEUMSCAPE  
IN TIMES  
OF TRANSITION:  
A FOCUS ON  
MANTUA**



POLITECNICO DI MILANO,  
POLO TERRITORIALE DI MANTOVA  
SCUOLA DI ARCHITETTURA, URBANISTICA,  
INGEGNERIA DELLE COSTRUZIONI

ARCHITECTURAL DESIGN AND HISTORY  
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# **THE ITALIAN PETROLEUMSCAPE IN TIMES OF TRANSITION: A FOCUS ON MANTUA**

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My research aims to explore the landscapes of oil in Italy from the perspective of energy transition and to explore specifically the case of the petrochemical plant in Mantua.

Since the late 19th century, petroleum has given rise to a palimpsest of spatial layers differing in type, scale, function, aesthetics and economic impact. This palimpsest has been defined "Petroleumscape".

In these pages I have outlined a mapping of the petroleumscape on a national scale, according to categories defined by Carola Hein, involving the industrial spaces subordinate to the extraction, processing and distribution of oil and its products, the retail spaces dedicated to their sale directly to the consumer, the administrative spaces which include all the buildings and offices occupied by the system of companies that manage the oil cycle, and the ancillary spaces, that is, all the structures that are not functional to the process of its production and processing, but rather to the practical needs of the company and which help to create its identity.

Today, oil meets 33% of national energy needs. Of the total energy produced from oil and its products, most is used in the transport sector, where it accounts for 90.5%. In addition, its products cover about 90% of the petrochemical industry's raw material requirements for the production of plastics, synthetic fibres and rubbers, detergents and other products.

In order to achieve the goal formulated in the Paris Agreement of limiting the global average temperature increase to 1.5°C above pre-industrial levels, it is essential that all countries proceed to eliminate direct and indirect subsidies to oil and other fossil fuels, paving the way for its decommissioning.

The aim of this mapping is to raise readers' awareness of the vastness and multifaceted character of the territory still linked to this hydrocarbon, which will soon have to be rethought and converted in a sustainable manner, and of how many industrial and other structures will be and are already architectural evidence of an era, that of oil.

The case study of Mantova and its petrochemical pole, studied in its industrial evolution from 1900 to the present day, was analysed with the aim of showing the typology of petroleumscape spaces at a close scale and to be able to reflect on the possibilities of transformation of these spaces in the current context of energy transition.



## **THE ITALIAN HISTORY OF PETROL**

The history of oil in Italy is inextricably linked to that of Enrico Mattei, who in 1945 became liquidator of Agip (Azienda Generale Italiana Petroli) with the task of liquidating the company and handing everything over to the private sector. Aware of the strategic importance of energy sources for a country in need of reconstruction, Mattei decided to resume the search for hydrocarbons on national soil, discovering a methane field in Caviaga in 1946. Three years later, in 1949, oil and methane fields were found in Cortemaggiore, in Emilia Romagna. This was the beginning of Italy's great oil story.

On 10 February 1953, the state established the Ente Nazionale Idrocarburi, ENI, with law no. 136, which granted the company a monopoly in the search for and production of hydrocarbons in the Po Valley area; the new company was given control of Agip, Anic (Azienda Nazionale Idrogenazione Combustibili), Snam (Società Nazionale Metanodotti) and other minor companies, thus becoming an integrated oil and energy group that could guarantee the exploitation of Italy's energy resources.

Although oil research had not proved as prosperous as hoped, Eni's early years were nevertheless years of great development. The Ravenna petrochemical plant for the production of fertilisers was built, and the development of motorways built using bitumen, a product of oil, was accompanied by a very modern and advanced petrol distribution network through service areas, sometimes flanked by motels.

The logo of the 'six-legged dog, faithful friend of the four-wheeled man', Agip's first advertising slogan, invented by Ettore Scola, dates back to 1952.

Mattei's goal was to free Italy from the oil monopoly of the 'seven sisters' (the US Exxon, Mobil, Texaco, Standard oil of California (Socal), Gulf oil, Anglo-Dutch Royal Dutch Shell and British petroleum) on the supply of oil to Europe. In 1957 Mattei stipulated an equal agreement with the Shah of Persia, according to which Iran

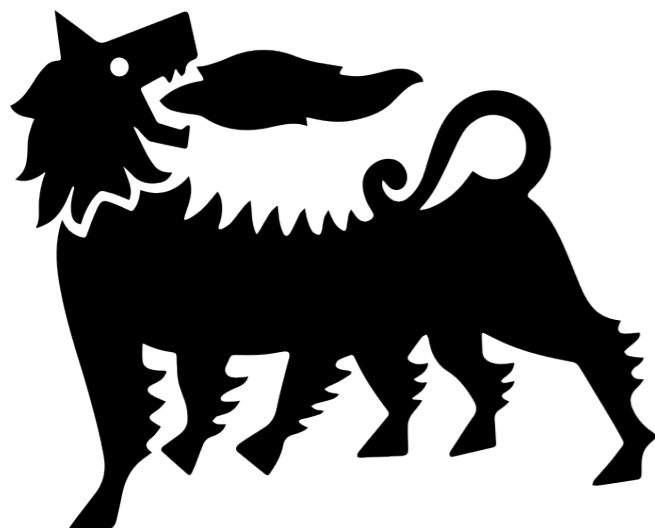
and Italy would form a 50-50 company, which would pay 50% of the royalties to the Iranian state and the remaining 50% would be divided equally between ENI and the National Iranian Oil Company (NIOC). In fact, the Iranian State benefited from 75% of the agreement (25% more than the Anglo-American fifty-fifty rule) and from direct technological participation in hydrocarbon exploration and extraction activities. According to this agreement, the oil-producing country stopped being the mere owner of the extraction rights, but also participated in the organisation and production.

The 'equal' relationship immediately found favour with many African and Middle Eastern countries. Other agreements were soon established with Egypt, Algeria, Libya and, in the 1960s, with the Soviet Union, which provided for the purchase of crude oil in exchange for products from Pignone, the Florentine plant engineering company, a leader in the production of machinery for oil exploration on land and at sea. Among the various agreements, this was the one most discussed and condemned by the West, because it went against the Cold War line-ups.

In 1962 Mattei died in a mysterious plane crash on his way back from Gela, where oil deposits had been found and a new refinery was about to open. After his death, Eugenio Cefis took over the reins of the company with 56,000 employees.

Ten years later, in 1973, there was the first oil crisis following the outbreak of the Yom Kippur war between an Arab coalition of Egypt and Syria and Israel, which caused the price of oil to rise from \$2.5 per barrel to \$12. A second oil crisis marked the beginning of the 1980s and broke out following the Persian revolution. In the same years, while trying to make agreements with new countries in Africa, Europe's largest oil field was discovered in Basilicata, in the Agri Valley.

Eni's history as a public body ended in 1992, when it was privatised and became a joint-stock company.



**PETROL AND THE NATIONAL  
ENERGY SITUATION**

According to the National Energy Balance drawn up by Arera (Autorità di Regolazione per Energia Reti e Ambiente) based on data from the Ministry of Economic Development and Terna, in 2019 Italy consumed 50,061 Ktoe of oil and petroleum products, out of a total of 151,464 Ktoe, covering 33% of energy demand. The first most used source was Natural Gas (40.2%) with a consumption of 60'949 Ktep, followed after Oil by Renewable Sources (19.5%) with 29'512 Ktep, Solid Fuels (4.3%) with 6'480 Ktep, Electricity (2.2%) with 3'280 Ktep, and finally Non-Renewable Waste (0.8%) with 1'182 Ktep.

Of the total energy produced from oil and its products, most is used in the transport sector where it accounts for 90.5%. Far less influential is its presence in industry (7%), and other sectors (9%) such as services, residential, agriculture, fisheries and others.

The data taken into account are from 2019 because 2020 was of course a very special year for energy consumption. The measures taken since the end of February 2020 to contain the pandemic emergency have resulted in a marked fall in energy consumption, estimated at around 9% compared with 2019, the biggest drop since the WWII. The overall reduction in energy demand derives mainly from the collapse of the oil one, which paid the heaviest price for the effects of the pandemic with a drop of more than 16% on 2019, as a result of the halt in mobility, which, as we have just seen, is almost entirely fueled by oil products.

However, oil is not only used as a fuel, its products cover about 90% of the petrochemical industry's raw material requirements for the production of plastics, synthetic fibres and rubbers, detergents and other products.

Currently, domestic crude oil production accounts for more than 12% of total consumption. The substantial increase in the national figure (8% in 2016), in particular in crude oil production, was determined by the entry into production, in the first half of December 2019, of the Tempa

Rossa site in Basilicata. Tempa Rossa is one of the largest onshore fields in Europe.

About 80% of the crude oil is therefore imported. Italy has in fact import-export agreements for crude oil, petroleum products and semi-finished products with many countries all over the world. Most comes from the former USSR Area (33,8%) and from Africa (31,5%). More specifically, about a fifth of the total comes from Azerbaijan (22%), followed by Libya (19,1%), Iraq (14,9%) and Saudi Arabia (10,4%). While total imports of crude oil amounted to 50,363 thousand tonnes in 2021, exports of crude oil, together with semi-finished products, amounted to 1,185 thousand tonnes. The import-export trend for finished products was the opposite. For an import of 13,831 thousand tons, Italy exported 22,764 thousand tons. The petroleum products in question are LPG, Petrol, Virgin Naphtha, Carboturbo, Diesel, Fuel Oil, Lubricants, Bitumen, Biofuels, Petroleum Coke and others.

Most of them are countries with high geopolitical risk profiles, which is why there is such a strong diversification of suppliers. Italian stocks of crude oil and petroleum products amount to 130 days of imports according to the International Energy Agency (IEA) methodology, corresponding to 90 days of net imports according to current European regulations. However, Italy has developed a stock system whose management is entrusted to OCSIT (Organismo Centrale di Stoccaggio Italiano), operating under the supervision of MiSE (Ministry for Economic Development), with the obligation to purchase the equivalent of 30 days of security stocks, on behalf of the State, within this current year (2022).

Since the signing of the Kyoto Protocol, the European Union and its Member States have committed themselves to a course of action aimed at combating climate change by adopting Community and national policies and measures to decarbonise the economy.

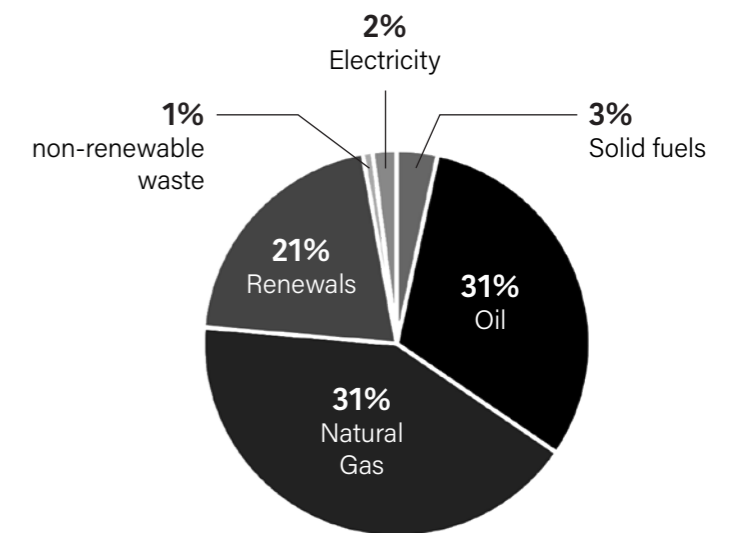
This path was confirmed during the 21st Conference of the Parties to the Framework Convention on Climate Change (COP 21) in Paris in 2015, which concluded with the formulation of the Paris Agreement. The agreement establishes the need for the containment of the global average temperature increase well below 2°C and the pursuit of efforts to limit the increase to 1.5°C, compared to pre-industrial levels.

In order to achieve the goal of this agreement, it is essential that all countries proceed to eliminate direct and indirect subsidies to fossil fuels (primarily oil, natural gas and coal). In aid to this issue, the 11th November 2021 the Italian Minister for the Ecological Transition Roberto Cingolani signed the adhesion as "friend" to the BOGA, Beyond Oil and Gas Alliance, in the framework of COP26. BOGA "is an international alliance of governments and stakeholders working together to facilitate the managed phase-out of oil and gas production. Led by the governments of Denmark and Costa Rica, the alliance aims to elevate the issue of oil and gas production phase-out in international climate dialogues, mobilize action and commitments, and create an international community of practice on this issue".

Clearly, the slow phasing out of fossil fuels must be balanced by strong interventions to significantly increase the use of renewable energy sources, through direct investments and the simplification of authorisation procedures for renewables, often blocked by the Superintendency. For this mission the PNRR (National Recovery and Resilience Plan) has addressed the 37% of the budget.

To deal properly with Ecological Transition, in 2021 the Ministry for Ecological Transition (MiTE) was set up in replacement of the Ministry for the Environment, Land and Sea, with the new responsibility for energy matters, previously assigned to the Ministry for Economic Development (MiSE). Getting to the heart of the oil issue, MiTE is, together with the Region, the

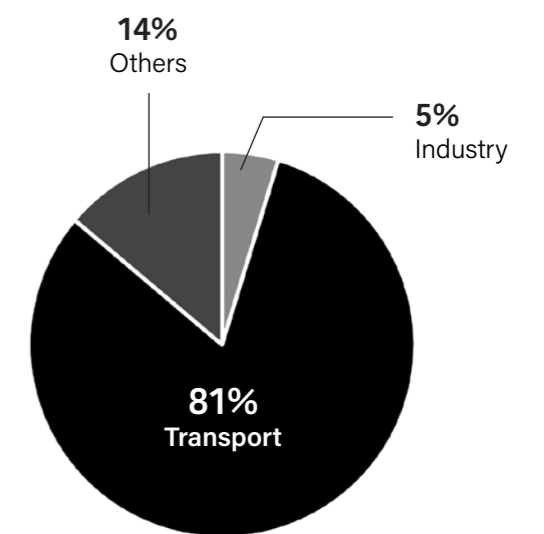
1. National energy consumption by source



2. Final energy consumption of oil

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governmental body in charge of examining the Environmental Impact Assessments required to oil companies that require exploration permits and production licenses, then released by the MiSE (Ministry of Economic Development). An exploration permit may last for up to 12 years, while a production license 20 years, and can be extended up to a maximum of 10 years. The MiSE has also a chemical laboratory which carries out checks connected to the workers' health, and on the emissions arising from the treatment of the gas and oil.

Another key regulator is the Italian Institute for Environmental Protection and Research (ISPRA), that is part of a network known as National System for Environmental Protection (SNPA), made up of 21 ARPA (Agenzia Regionale per la Protezione dell'Ambiente). These are technical bodies present in every Region of Italy which specifically deal with checking that the chemical and physical parameters of the plants comply with the limit values laid down by environmental legislation (the most important one being Legislative Decree no. 152/2006 and subsequent amendments) and the limits laid down by the licenses authorizing each specific facility.

Looking to the future, according to the projections of the evolution of the energy system drawn up in the National Integrated Plan for Energy and the Climate (PNIEC), domestic consumption of oil and its products is expected to decrease from 45,030 Ktoe in 2020 to 20,689 Ktoe in 2040, when it will be conspicuously replaced in the transport sector by biofuels, hydrogen and electrically powered vehicles, both for passenger and goods transport.

The opposite trend will be seen in the use of renewable energy sources, whose national production (including non-renewable waste) will rise from 28,160 Ktoe in 2020 to an estimated 43,989 Ktoe in 2040.

The economic benefits of renewables for end consumers will be pronounced because the

generation cost of wind and solar power plants is set to fall further, and because of their intrinsic characteristics: they do not involve costs for extraction or for transport infrastructure. In addition, in a country like Italy, with its scarce deposits of raw materials but rich in natural resources from sun and wind, the cost of imports is reduced, as is dependence on countries that produce fossil fuels and market competition from other countries. Finally, in the energy transition perspective, fossil fuels will be increasingly impacted by the costs of greenhouse gas emission permits, making clean energies even more competitive.

What is certain is that the future should not involve oil, but also that today oil still involves millions of hectares of land, which are destined to lose their function. In order to avoid a dysfunctional emptying of these lands, it is important to first map them and find out what the Italian petroleum landscape is made of.

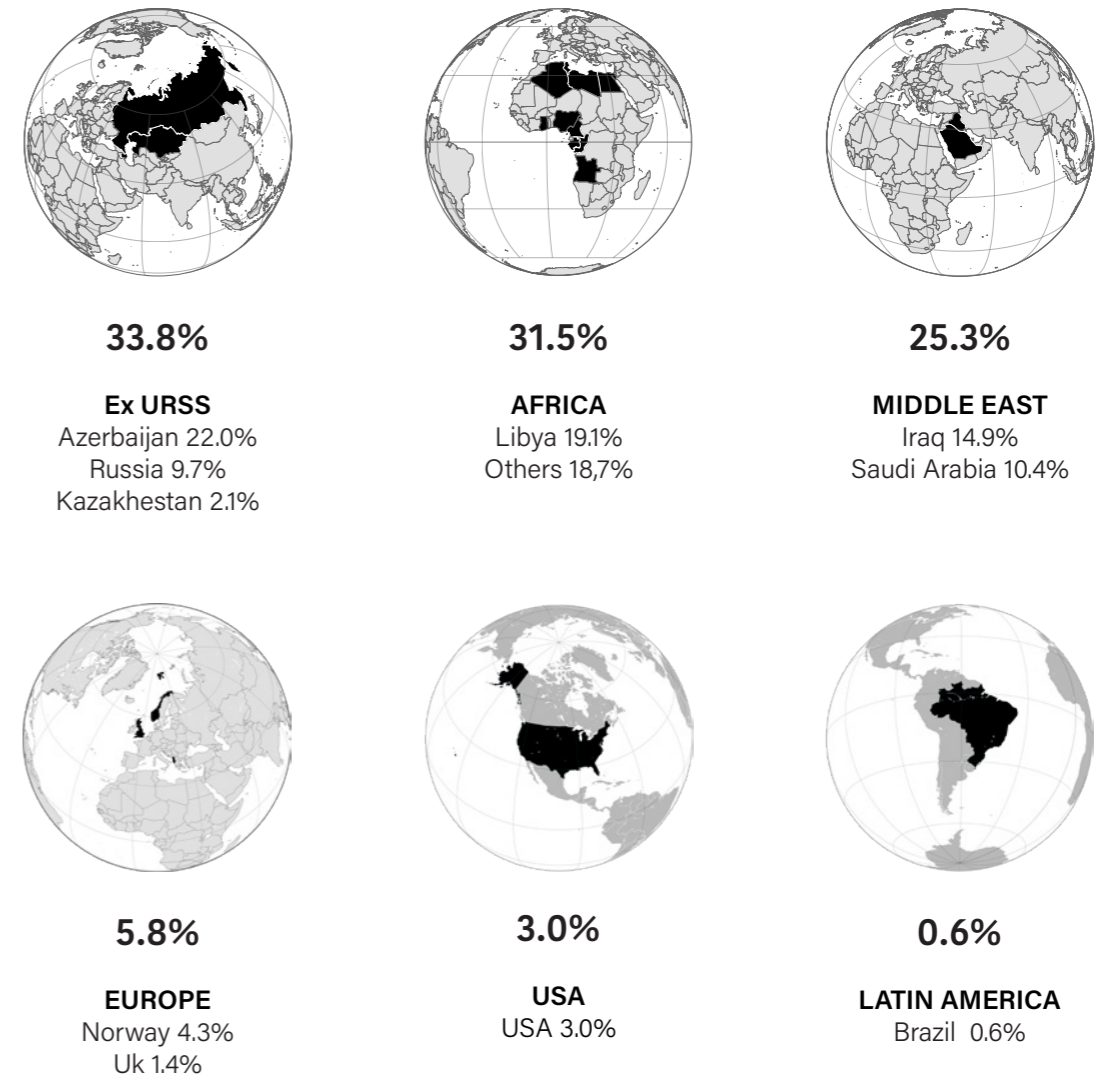
**Right page**

1. Crude imports by country of origin
2. Import - export of crude, products and semi-finished products

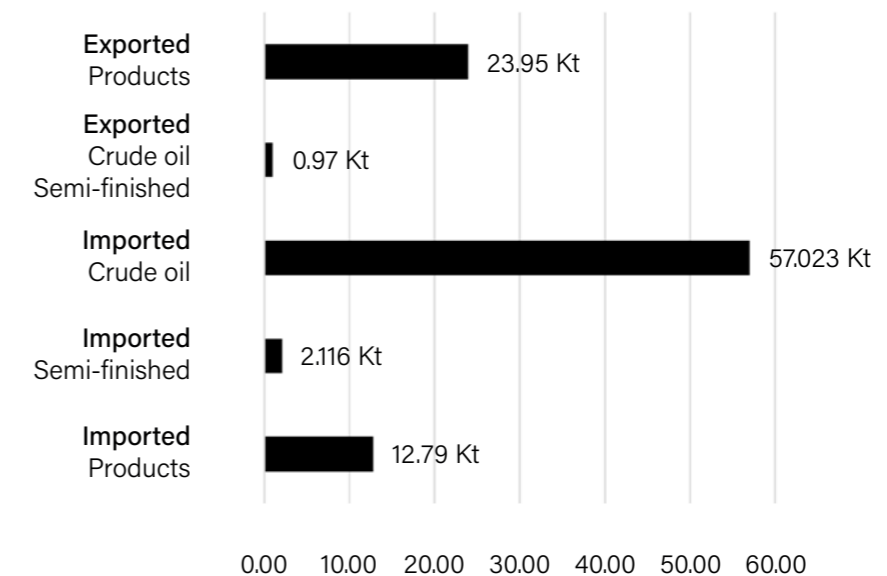
**NOTES**

1. UNEM, Relazione annuale 2021, p.21
2. UNEM, TAB. 44bis "Provenienze del greggio importato"
3. UNEM, TAB. 52bis "Esportazioni greggio prodotti e semilavorati"
4. UNEM, TAB. 48bis "Importazioni di prodotti finiti e di semilavorati"
5. BOGA, official website, Who We Are

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## THE ITALIAN PETROLEUMSCAPE

“Petroleum is a physical material with a pervasive impact on physical space in terms of architecture, cities, and landscapes”.<sup>1</sup>

Dark and viscous liquid, oil has given rise in the world and in Italy to a palimpsest of spatial layers differing in typology, scale, function, architectural aesthetic and financial impact, but nevertheless part of one unique system: the Spatial Petroleumscape. These layers must therefore be understood and identified in their multiscalarity and, according to Carola Hein’s research, divided into 7 macro-categories: industrial, retail, administration, ancillary, infrastructure, architecture and philanthropy.

Starting from the Industrial Petroleumscape, there are multiple areas of analysis, which can be divided into three types: upstream, which are the places where oil is extracted; midstream, which are all the infrastructures underground such as the pipelines, above ground such as rails or roads, and in the sea, which transport oil and its products to and from refineries; and finally downstream, which are all the sites for refining and processing of oil, including petrochemical industries.

If the **Industrial Petroleumscape** is accessible and visible only to certain categories of people, who are directly involved in it, the **Retail Petroleumscape**, and thus the gas stations, are recognisable places in the collective imagination, often unnoticed but always present at the roadside.

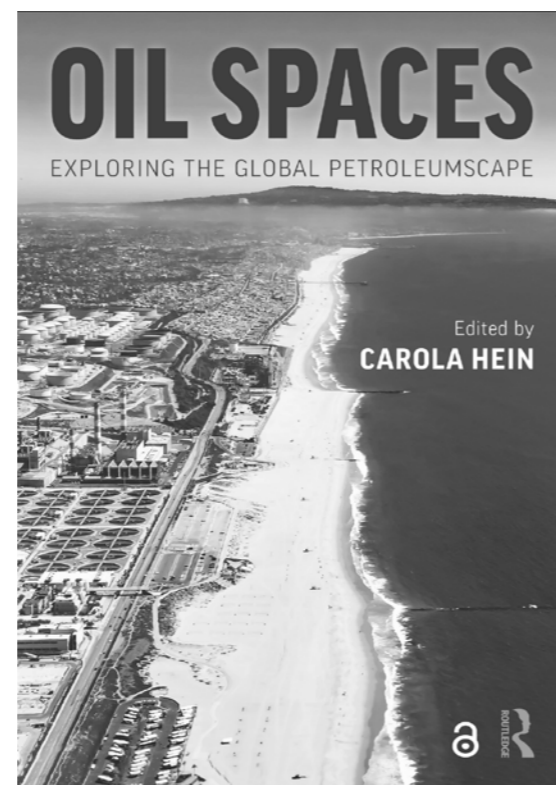
Less constant than the retail petroleumscape, and of greater physical and visual imposingness is the **Administrative Petroleumscape**, and therefore the headquarters, offices and research laboratories of the oil companies, often architectural achievements of great value, and often adjoining or part of a larger overall project including ancillary spaces.

The **Ancillary Petroleumscape** includes all structures that are ancillary to the oil industry, i.e. not directly linked to the industrial network,

but financed by the oil companies for economic development and image purposes. These include workers’ houses or even entire villages, roads, churches and leisure facilities.

The last three layers are the **Infrastructural Petroleumscape**, which includes roads, railways, ports and airports and requires public support; the **Architectural Petroleumscape** defined by plastic architectural components; and finally the **Petroleumscape of Philanthropy**, i.e. all investments in health, education, culture and heritage.

The petroleumscape is not just a physical spatial conception, but goes beyond that to create a second kind of it: the Representative Petroleumscape. This is the way in which all the oil-related physical spaces are narrated. From art to literature, through cinematography, advertising and magazines, there is a broad narrative of the petroleumscape, whether it is the result of an independent perception of it, or a marketing strategy.



#### NOTES

1. ed. by Carola Hein, “Oil Spaces, Exploring the Global Petroleumscape.” Oxon: Routledge, 2021, p. 4.

# INDUSTRIAL

The concept of Industrial Petroleumscape connects the infrastructural network, the drilling platforms, the refineries, the oil depots, and the thermoelectric plants fueled with oil, under a single, extended spatial entity, "a truly global space with standardized structures that are identical around the world".<sup>1</sup>

In Italy there are 11 refineries operating. Between 2011 and 2015, 5 refineries were closed. Two of them (Gela and P. Marghera) were converted into bio-refineries, while the ones of Rome, Mantua and Cremona were turned into logistical hubs.

Most of the active ones are located along the coast, both Tyrrhenian and Adriatic, and are supplied by sea. Only three are inland, in the Po Valley in northern Italy. These are the refineries in the provinces of Genoa, Novara and Pavia.

The first one is located in Busalla (GE), belongs to the company IPLM S.p.A. and is supplied with crude oil through a proprietary pipeline starting in the Porto Petroli di Genova. Since the late 1980s it has specialised in the production of bitumen.

The second one is in Trecate, about 10 km from Novara, owned by SARPOM S.r.l., a company participated by Esso Italiana S.r.l. and Italiana Petroli S.p.A. It's an important producer of fuels and other petroleum products for supplying northern Italy thanks to its connection with 11 depots through an extensive network of oil pipelines. It receives its crude oil from Quiliano, in the province of Savona, through a 145 km long pipeline.

The last one inland, owned by ENI Div. R&M, is in Sannazzaro de' Burgondi. It too is supplied with crude oil through a pipeline starting in Genoa,

and continuing to Collombey, Switzerland, where there was a refinery closed in 2015 and currently being dismantled.

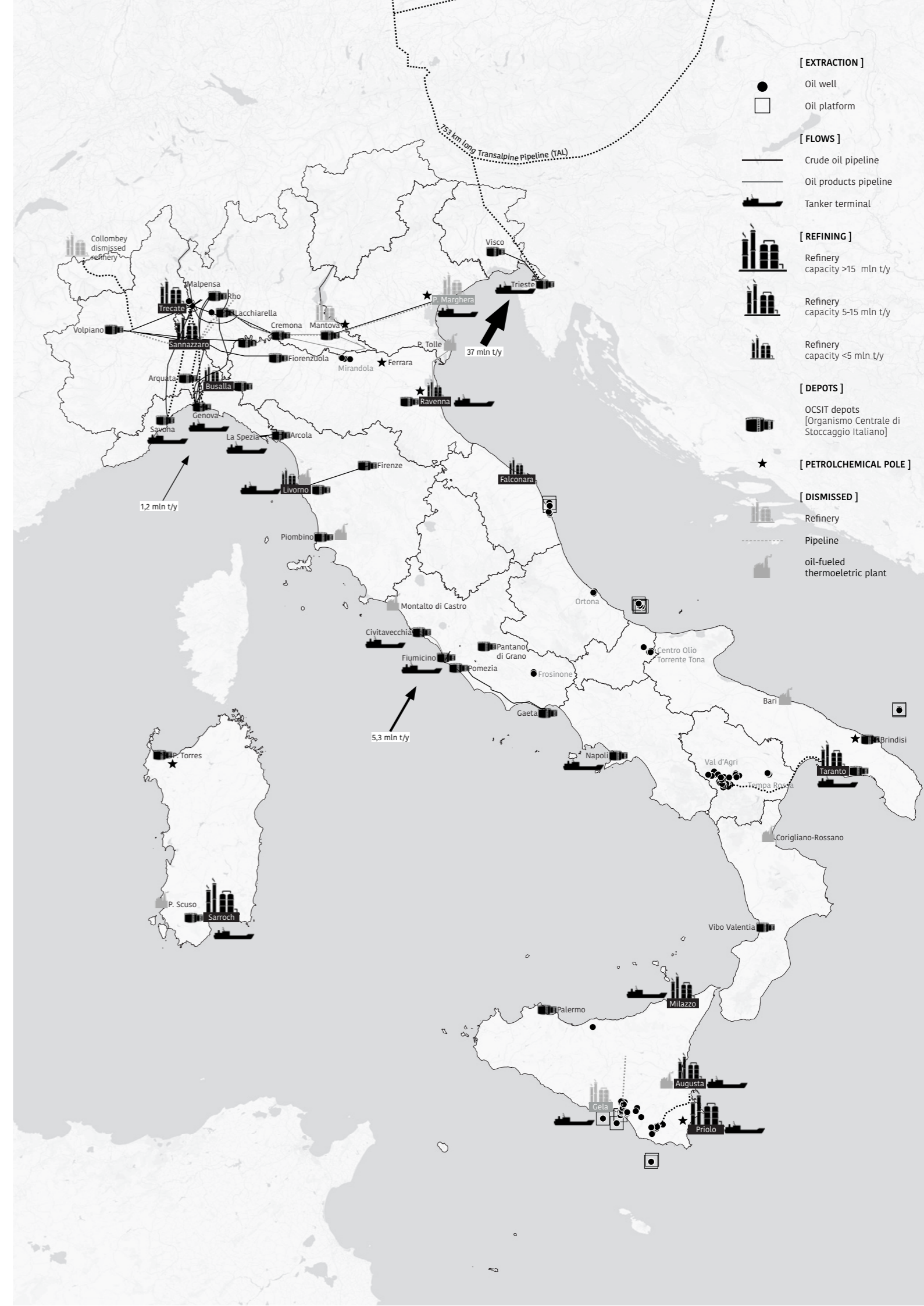
This pipeline and the 753 km long TAL (transalpine pipeline) linking the port of Trieste with Central Europe, are the two largest Italian cases of international crude oil pipelines.

The remaining 8 refineries range from very large and complex export refineries on the islands of Sardinia and Sicily, to some simple and small refineries.

The Sardinian refinery in Sarroch, in the province of Cagliari, owned by Saras S.p.A., has a processing capacity of 15 million tonnes per year, which represents around 20% of Italy's refining capacity. Most of the production is represented by light (naphtha and gasoline) and middle distillates (Diesel and fuel in general).

A region with an extensive oil activity is Sicily, with 3 refineries, numerous subsea and onshore wells, marine platforms and depots. The refineries are: one in Milazzo (ME), owned by RAM (Eni S.p.A. + Kuwait Petroleum Italia S.p.A.), with a production capacity of 10 mln t/y; one in Augusta (SR), owned by Sonatrach S.r.l., with a capacity of 8 mln t/y and directly connected, through a pipeline, to the neighbouring Priolo refinery, owned by ISAB-LUKOIL and part of one of Europe's largest petrochemical poles. The latter is the youngest refinery in Italy, as well as the one with the highest production capacity, reaching in fact 19 million t/y, and its production is mainly oriented towards middle distillates.

63% of the country's oil production takes place in Val d'Agri, Basilicata, where crude oil is extracted from 24 oil wells. From there it is transported to the Centro Olio Val d'Agri di Viggiano (COVA)





for initial processing and then sent by pipeline to the Taranto refinery. This refinery, owned by ENI, has a processing capacity of around 5 million tonnes per year.

The remaining refineries are in Livorno (ENI), Falconara, province of Ancona (API Italiana Petroli S.p.A.,) and Ravenna (ALMA PETROLI) are the smallest in terms of production capacity (less than 5 mln t/y). All those refineries that are less competitive by their technical configuration, are mostly located near large areas of consumption and they derive a competitive advantage from their location.

According to the Unem Annual Report 2021, Italy, that receives crude oil only by sea, has 16 tanker ports. The port that received the most crude oil in 2020 was Trieste, where the transalpine pipeline starts, with an arrival of 38,000 thousand tons of crude oil. The total arrival, on a national scale, was 89,430 thousand tonnes. Each of these ports has, or is in the vicinity of depots belonging to the OCSIT (Organismo Centrale di Stoccaggio Italiano). There are approximately 704 industrial and commercial oil storage depots in Italy.

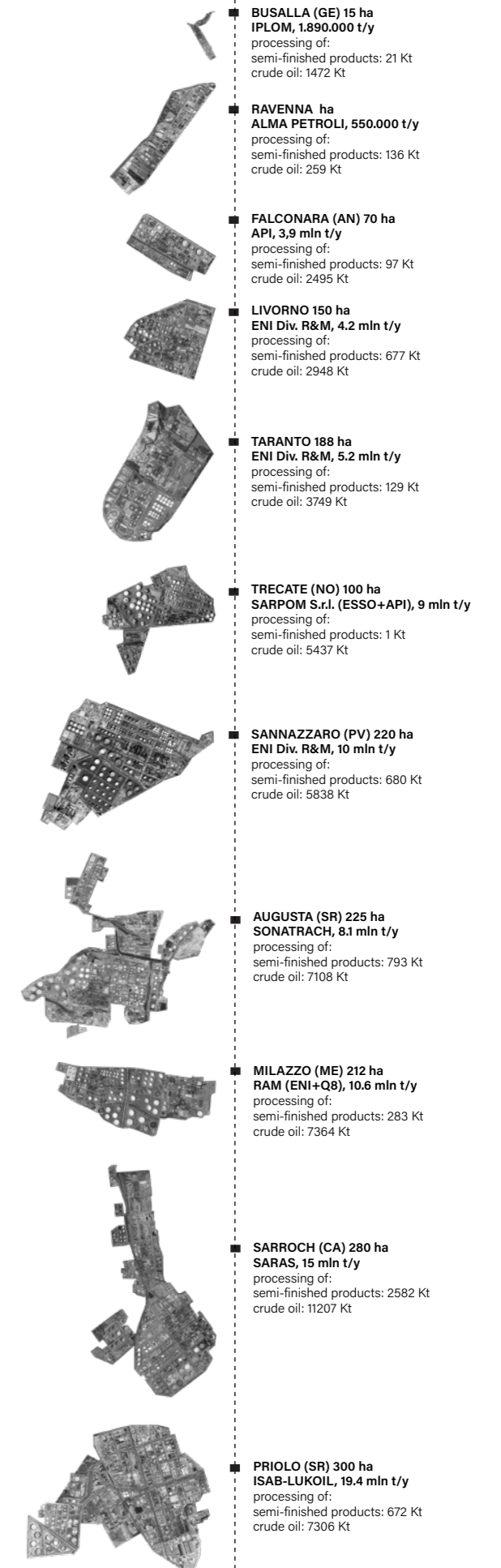
The production of thermoelectric energy by oil, according to Terna data, is almost irrelevant. In 2018 only 3,3 GWh of thermoelectric energy were produced using oil, out of a total of 192,8 GWh. This data is the result of the progressive closure of oil-fuelled plants all over Italy. Some of these are now involved in the Futur-e project launched by Enel that aims at their reconversion. In a divestment perspective t's important to understand that "several architectural and other elements of thermoelectric power station landscapes—physical structures that may remain after the energy transition—can be interpreted as the heritage of the future and as objects with the potential for new uses".<sup>2</sup>

#### NOTES

1. C. Hein (ed.), "Oil Spaces, Exploring the Global Petroleumscape". Oxon: Routledge, 2021.
2. C. Geroldi, G. Pessina, "Power Stations and Petroleum Heritage in Italy: The Case of Porto Tolle", in C. Hein (ed) "Oil Spaces, Exploring the Global Petroleumscape", New York: Routledge, 2021.

## REFINERIES

### Capacity order



## RETAIL

The second category of petroleumscapes analysed is Retail. The term retail refers to activities related to the sale of products or services by a company directly to the final consumer, who purchases them for personal consumption. Within the petroleumscapes, retail consists of the network of fuel outlets.

According to data provided by UNEM, the total network of fuel outlets in Italy at the end of 2020 is estimated at 21,000. Of these, 4122 belong to Eni Div. R. & M., 2751 to the K.P.I. group. (Q8), 2145 to Esso, 1337 to Tamoil and 35 to other minor operators. Other major operators (Api Group, Retitalia, Repsol) own 5120, and finally there are an estimated 6190 white pumps throughout Italy.<sup>1</sup> When these are divided by region, Lombardy is the region with the most, with an estimated 2259 outlets in operation at the end of 2017.<sup>2</sup>

The architecture of what we commonly call petrol stations has its roots in the early years of the 20th century. In the 1920s, the first generation of motorways took shape on the initiative of engineer Piero Puricelli, who founded the Società Italiana Autostrade in 1921 and built what was to become the Autostrada dei Laghi, the first toll motorway in Italy, reserved solely for motor traffic.

At that time, the fuel distribution network was far from being organised and structured to serve travellers. It still consisted of pillar-mounted petrol pumps, which were located in town centres, in squares and near arterial roads.

The delay in the distribution of cars in Italy is also reflected in the slowness with which petrol is distributed from the simple petrol station to the small kiosk with pump. It wasn't until 1932 that the Società Italiana pel Petrolio e Affini registered a patent for a factory model for a kiosk for distributing petrol.

"The model is of octagonal prismatic shape, with four longer sides on the four faces and four shorter sides interspersed between the prisms on the chamfered edges of the kiosk. The framework of this kiosk is formed by uprights made of shaped iron of suitable profiles, embedded with their feet in a base of concrete, cement and the like, and connected together at suitable points with transverse shaped irons or frames. The walls are made of metal sheets suitably fixed to the aforementioned uprights and frames, and leave open, on one of the sides of the kiosk, a large distribution window with a double glass casement and a suitable metal shutter for closure; on the other two sides there are fixed or mobile glass windows with or without shutters, and on the remaining side there is a metal sheet door for the entrance to the kiosk. Above the aforementioned openings, there is a shaped glass canopy around the entire perimeter of the kiosk, with an iron profile framework, and above that a metal sheet roof in the shape of a quadrangular pagoda dome and at the top of the roof there is a wrought iron frieze supporting a metal sheet disc".<sup>3</sup>

Sevizio Costruzioni Fiat itself will promote the installation of refuelling kiosks, sales points for its own lubricants and spaces for small repairs in the workshop. That's how unimagined urban and suburban spaces were born, symbols of modernity and innovation.

In the years between the wars, the Italian motorway network was expanded, followed by the evolution of the simple petrol station into a service station, equipping the surroundings and specialising the functions: not just refuelling, but washing and greasing, as well as small mechanical workshop services.

The garage and service station for repairing and refuelling cars and trucks designed by architect

Total fuel sales points by Region  
Tot. in Italy: 16058



Giovanni Muzio in Lodi [in icons] dates back to these years. It was widely criticised by Edoardo Persico, editor of Casabella at the time, as Muzio's "strongest negation of the new architecture"<sup>4</sup>, due to its classical attitude towards a rationalism that was supposed to be a pure simplification of traditional language.

Standardisation of the service station took its first forms with the development of the Italian motorway system, and in particular with the construction of the Autostrada del Sole, which began in 1956.

**below:**  
pillar-mounted petrol pump  
Piazzale Loreto, Milano 30'

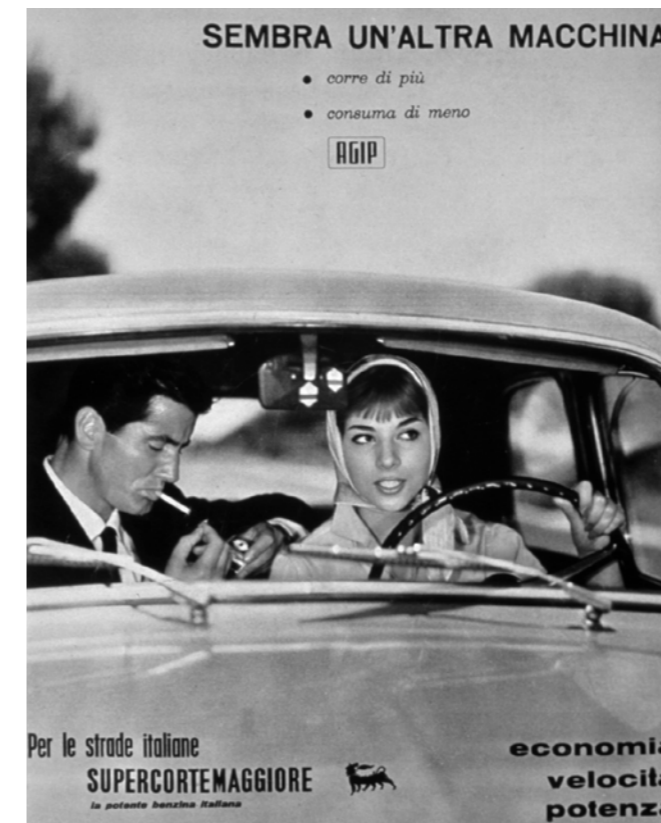


Long before work began on the motorway, Enrico Mattei commissioned architect Mario Bacciocchi, the same architect who in 1951 had designed and built the iconic Piazzale Accursio station in Milan, a symbol of Eni's power during the years of the economic miracle, to come up with a model for the filling stations. With a corner solution that allows it to connect to the existing buildings, closing off a block, the new station stands out in its context as "the streamlined prow of a steamship wedged into the city, the nacelle and wings of a cartoon spaceship ready to take off into the future".<sup>5</sup>

"The Agip's programme to strengthen the road distribution network of fuels and lubricants envisages the construction of numerous refuelling centres along all the most important traffic arteries. Agip has therefore prearranged the study of a number of standardised types of installations which combine efficiency and rationality with boldness and an elegant design. All of them, however, are characterised by a pleasant common line that distinguishes them, even from a distance, from the stations of the other distribution companies".<sup>6</sup>



**above:**  
petrol station Esso,  
Piazza San Lorenzo, Gallarate (VA), anni 40.



**left:**  
Shell petrol advertisement billboard,  
Nafta, Società Italiana per Petrolio e Affini,  
Aldo Mazza 1925

It could be said, therefore, that thanks to the collaboration between Mattei and Bacciocchi, service stations in Italy were transformed from petrol stations into places for rest and consumption, with the provision of certain services such as restaurants and motels.

"Bacciocchi's standard model includes 13 versions of the same type, differing only in size and furnishings. The basic module of the filling stations consists of a wall that tapers downwards and from which, on both sides, two covers extend at different heights, so that overall the profile takes on the appearance of an irregular "T". The cover of the front wall projects more than the rear wall and ends with a downward curvature. This type of roof is one of Bacciocchi's favourite elements"<sup>7</sup>, defined over the years as the "Bacciocca".<sup>8</sup>



**left page:**  
*La Bacciocca*  
Agip petrol station, 1962.

**left:**  
Agip petrol station,  
italian roads, 50's.

**Below:**  
Mario Bacciocchi,  
Metanopoli, 1956.

Agip petrol station,  
Mario Bacciocchi, 1951

"The different types proposed by Bacciocchi are divided into various groups according to the size of the filling station. The smallest model, consisting simply of the basic module, is the Shelter (Project I), followed by models that also include a small, medium or large kiosk, respectively with or without a projecting shelter (Projects II-VII). After the kiosks of various sizes, it is the turn of the small, medium or large petrol stations (Projects VIII-X); and finally there are three different scales of petrol stations (Projects XI-XIII)".<sup>9</sup>

Agip's omnipresence was progressively guaranteed throughout Italy. In the years of the most widespread use of petrol stations, around 1961, activity was frenetic, reaching as many as 400 a year. As early as 1956 it was stated: "The Agip service stations with their unmistakable architectural lines have become an integral part of the Italian landscape."<sup>10</sup>





## NOTES

1. UNEM, TAB 82 bis, Rete punti vendita carburanti per operatore
2. UNEM, TAB 86, Rete punti vendita carburanti per regione
3. P. Niccolin, A. Rocca, The view from the road. 1964-2003, in Lotus Navigator, 7, Il paesaggio delle freeway, 2003, p. 7.
4. E. Persico, Razionalismo di Muzio, in Casabella, 80, 1934, p. 36.
5. L. Greco, Architetture autostradali in Italia, Gangemi Editore, Roma 2010, p. 145.
6. Introduction by Mario Bacciocchi at the presentation of his models for Agip service stations, early 1950s.
7. Dorothea Deschermeier, L'impero ENI, L'architettura aziendale e l'urbanistica di Enrico Mattei, Grafiche Damiani, Bologna 2008, p. 142.
8. Definizione dell'architetto Giordano Bacciocchi, figlio di Mario.
9. Dorothea Deschermeier, L'impero ENI, L'architettura aziendale e l'urbanistica di Enrico Mattei, Grafiche Damiani, Bologna 2008, p. 142.
10. M. Parrella, Stazioni di servizio: crocevia della vita moderna, in "Il Gatto Selvatico", II, 6, 1956, p. 12.

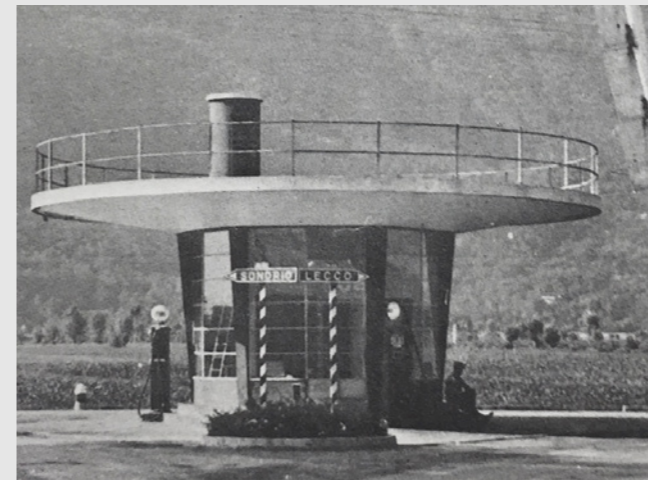
■  
1933, Lodi  
Giovanni Muzio,  
Garage Barnabone



■  
1949, Sesto  
Aldo Favini,  
Stazione di servizio Aquila



■  
1933, Colico  
Mario Cereghini,  
Chiosco per rifornimento auto



■  
1951, Milano  
Mario Bacciocchi,  
Stazione di servizio Agip



■  
1935, Lecco  
Mario Cereghini,  
Stazione di servizio Lungolago



■  
1953, Trieste  
BBPR,  
Stazione di servizio Aquila



## ADMINISTRATIVE

The Administrative Petroleumscape consists of all the headquarters, offices and research centres of the oil companies.

In order to get an overall picture on a national scale of how the major players in the oil business are distributed, I looked at the UNEM Associated Companies and located their administrative offices. Without any great surprises, it turns out that the two Italian cities where they have the largest presence are Rome and Milan, and that the production areas do not necessarily have administrative representation.

The most particular and striking case of this category of landscape is Metanopoli, ENI's administrative and organisational centre in the San Donato district of Milan.

Metanopoli arose from the need to create a centre for the operation and maintenance of methane pipelines, and it was not until the end of the 1950s that it also became a management centre. The urban development project was entrusted to Mario Bacciocchi, who is also credited with coining the term Metanopoli.

"You president gave me the task of designing a lot of houses, the motel for truckers and the laboratories. But you mentioned that a church will have to be built and that other buildings and services will have to be provided to complete the new centre. It will therefore be necessary to build an avenue starting from the Via Emilia, at right angles to it and running alongside the Snam industrial centre, and at the height of the site where the church is to be built an artery perpendicular to the avenue on which the buildings that will be needed in the future will be placed. And this will be the city of methane, this will be Metanopoli!"<sup>1</sup>

This led to the construction of a sports centre

with a football pitch and tennis courts, an ultra-modern swimming pool designed by Bacigalupo and Ratti and, to complete the residential area, a shopping centre, the church of Santa Barbara, a school centre comprising a nursery school, kindergarten and primary school and a medical centre.

In the second half of the 1950s, the Metanopoli settlement took shape in all its forms, assuming a physiognomy that was also suitable for becoming a management headquarters. Thus the administrative and management offices of SNAM in Corso Venezia and the ENI group were moved to San Donato Milanese. In 1956, construction work began on the First Office Building, designed by Marcello Nizzoli and Gian Mario Olivieri.

It was Adriano Olivetti who recommended Nizzoli as the architect to be entrusted with the project for "...an office building in San Donato, a skyscraper, something that must be modern and extraordinary, a construction that no one has ever done..."<sup>2</sup>

The result is a 15-storey, fully glazed building with a complex plan consisting of three hexagons set against each other and a fourth detached one. The complex also includes a second building with only two floors for general services, connected by a gallery.

This first office building was joined in 1962 by a second one, designed by Bacigalupo and Ratti, consisting of three rectangular bodies 55 m high forming a star-shaped plan. The facade is a green curtain wall.

These two towers represent the great change in Eni, which in 1957 was transformed into a holding company including Snam, Agip, Anic and Saipem.

## UNEM Associated Companies Administrative and head offices



It was then decided to establish the group's headquarters in Rome, and to concentrate the headquarters of the operating companies in San Donato.

The office building in the capital is also the result of a project by Studio di Architettura Bacigalupo e Ratti. The 20-storey building, with its glass façade, is the spokesman for the International style in Italy, and is configured internally as open-plan offices, in accordance with the Eni standard explicitly requested by Mattei.

The third office building, designed by Marco Albini, Franca Helg, Antonio Piva and Franco Albini, does not follow the logic of the first two. It is not a tower, but rather horizontality is accentuated here with continuous horizontal bands alternating with bands of glass.

Not far away, in 1984, a fourth office building was built, again designed by Bacigalupo and Ratti. It is configured as a square island with a continuous façade overlaid by a curtain of prefabricated concrete elements.

These two buildings form a second office block in Metanopoli, which will be joined by a third in the 1980s, with the fifth office building designed by Aimaro Isola and Roberto Gabetti as its nerve centre. The configuration of this one is unique and unrelated to the other buildings in San Donato. The complex is divided into cubic modules clustered in steps. The exterior looks like a mesh of aluminium frames covering the glass facades, allowing climbing plants to grow on them.

#### NOTES

1. Intervista con l'ingegner Sante Tibaldi, a cura di Vincenzo Gandolfi, 17 e 18 Maggio 1990.
2. ibidem

■  
1957, Metanopoli  
Primo palazzo per uffici,  
Marcello Nizzoli e Mario Olivieri



■  
1973, Metanopoli  
Terzo palazzo per uffici,  
M. Albini, F. Helg, A. Piva, F. Albini



■  
1961, E.U.R. Roma  
ENI headquarter  
Studio di Architettura Bacigalupo e Ratti



■  
1984, Metanopoli  
Quarto palazzo per uffici,  
Studio di Architettura Bacigalupo, Ratti, Alberti, Matti



■  
1962, Metanopoli  
Secondo palazzo per uffici,  
Studio di Architettura Bacigalupo e Ratti



■  
1991, Metanopoli  
Quinto palazzo per uffici,  
R. Gabetti, A. Isola, G. Drocco



## ANCILLARY

The Ancillary Petroleumscape consists of all those buildings that are not part of the production process of oil, but that are functional to the practical needs of the company and help creating a corporate identity both internal and external.

Talking about ancillary spaces in Italy means talking about construction promoted by Eni. Most of ENI's building heritage was created during Mattei's presidency, with the aim of providing employees with a very high standard of living.

Among the very first Eni ancillary buildings were motels for truckers. Starting in 1954, Enrico Mattei, returning from America, planned the spread of the MotleAgip along the strategic points of the most important roads. This was a new type of hotel, bookable for a few hours. The first one was built in Metanopoli by Mario Bacciocchi. Initially designed for the exclusive use of truckers arriving in Metanopoli to fill up with methane, it was later opened to everyone. As with the petrol stations, Bacciocchi also developed a standardised type of motel, and later the Bacigalupo and Ratti studio designed a series of motels located at nodal points along the Autostrada del Sole. A total of around forty motels were built throughout Italy between the 1960s and the 1980s.

As with the motels, the planning of the larger-scale ancillary landscapes presented themselves differently each time, depending on the designer in charge, since in everything Eni produced, there was no detailed and defined theoretical line. In addition to Metanopoli, during his presidency Mattei commissioned the construction ex novo of a workers' village in Ravenna to support Anic (Azienda nazionale idrogenazione combustibili); one in Gela, where

the first oil wells were built on Italian soil in 1957 and where construction of crude oil refining plants began in the 1960s; and a holiday village in Borca di Cadore.

Thinking of these, and in particular of San Donato, it is easy to create a parallel with Olivetti's Ivrea. However, there is a fundamental difference between them, because Adriano Olivetti's aim was to reform industry and make it more humane, whereas Enrico Mattei's aim was to build an identity for the company.

Olivetti wanted to transform his headquarters into a model industrial metropolis where there is harmony between public and private life, between work and home, between place of production and place of use. In the new factory designed to create harmony between man and machine, he introduced psychologists and sociologists with the task of studying the needs of workers in relation to the company's development, and he added a cultural centre to the sports centre.

Mattei's approach was more pragmatic. Metanopoli arose from the need to have a management centre, in a strategic position, equipped with residences and services, in order to make the company grow and build its identity. All Eni's villages are absolutely autonomous, protected, supervised and self-financed entities. In San Donato, the public environment, that of work, is distinct from the private one where there are residences, a sports centre, church, school, kindergarten and shops. The company provides everything from electricity and water supply to road and garden maintenance, public lighting and central heating. The houses are well spaced out and there is plenty of space for green areas. Inhabitants come from all over Italy and many guests come to attend the study centre and participate in training courses. There is in fact

## ENI Ancillary landscapes





the Agip Mineraria laboratory, the high school for hydrocarbon studies, the Idet management and technical institute and the professional school for employees.

The swimming pool built by Bacigalupo and Ratti and the grandstand by Bacciocchi inside the sports centre, built in 1956 and also including a football pitch with an athletics track, tennis courts, equipped green areas and animal pens, are of considerable architectural importance.

Metanopoli is undoubtedly the most important and complex of Eni's founding villages, but the Anic village in Ravenna and the one in Gela should also be mentioned. Supporting the refinery for the production of synthetic rubber and fertilisers, the Anic village in Ravenna was built in 1964 by Bacigalupo and Ratti, with accommodation for 2000 people, infrastructure and services such as schools, bars, shops and sports facilities. The village of Gela, on the other hand, is the result of an extensive project by architect Edoardo Gellner, later taken up, simplified and realised by architects Marcello Nizzoli and Mario Olivieri. Of the complex project for which the city was to be divided into two neighbourhoods, Montelungo and Gattano, set on two different slopes and united by a double square, only a small part of Gattano was ever realised. With 3,000 dwellings, this happy little reality, where everything works perfectly, stands in stark contrast to the native Sicilian reality, full of difficulties.



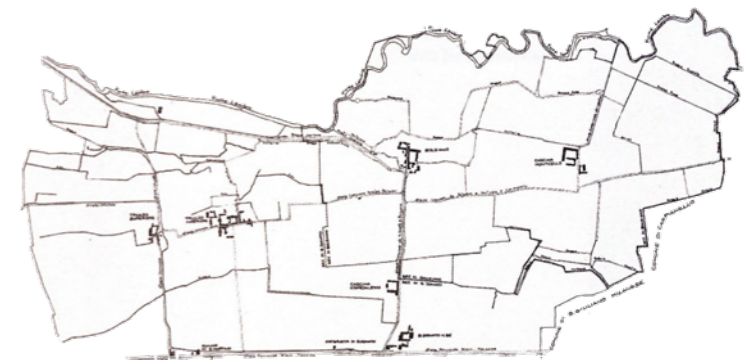
1.



2.



3.



4.

**Right:**  
Evolution of Metanopoli between the two wars 1, in 1962 2, in 1972 3, in 1994 4.

**Left:**  
San Donato and the Santa Barbara church by Mario Bacciocchi



Cortina



Modena



ROMA  
VIA AURELIA Km. 8



## Da Metanopoli



## a Ravenna

**Metanopoli**  
Appena il tempo di ammirare una vibrante scultura di Pericle Fazzini proprio all'ingresso del Palazzo degli Uffici E.N.I. (un tema religioso, la Crocefissione, rivisitato attraverso un episodio della Bibbia) che l'escursionista si apre e si inghiottisce per lanciarsi verso il verde piano, o giù di lì, delle Foresterie.

Il buon distanziario Palazzi (che egemonizza l'immagine sin dagli anni del giovanotto) spiega che le foresterie è il « luogo del monastero dove si allungano i forestieri ». Ma questi curiali burocratici fanno piuttosto pensare all'eterno arredo di una nave da crociera atlantica.

Sono le nevi del mattino e ho gli occhi rossi dal dormiveglia del ragone letto. Ecco, infatti in uno di questi letti di gomma-piuma e sognare il Mar delle Antille. In ogni cabina di questo immaginario transatlantico (che ha agitato anche lo scà di Pericle) la pittura moderna fa da bastone, occhieggiando da tutte le pareti. Qui un Rosai e al suo fianco un Carrà; e dietro un Tomba, e sinistra un Toppington. Scomparso che quella marina è di De Pisis, e la tacco con la mano per sintonizzare, allora, questa figura di donna sulla spiaggia sem-

brava da lontano un Guttuso e invece più in servizio e più è estenua nelle curve tenere d'un Paricotto. Un grosso abbaglio, il mio; e proprio in tempi in cui la cultura si misura nel tempo d'un quiz e la gente comincia a non far distinzione tra la vita d'un Modigliani e d'un Angeli.

Ovvero riferiti pronti e non può darsi che una sciccone diocesi scovasse. Ora, state certi, quel Guttuso non mi inganna più. Mentre mi accingo, scopro, sulla porta, una periferia milanese che è senza dubbio d'un Strati stile 1947. Gli occhi sono tornati larghi e la pittura figurativa ne approfitta per diventare la mia fedelissima allieva.

Ma c'è l'ora di colmare (almeno per stammi) le spalle. Mi sono avvicinato a un bar di fine taglio (avrebbe strabuzzato l'occhio magico d'un Antonini). « Frego, un caffè »; e subito mi affaccio, più scoglio che mai, nel paesaggio di questa Metanopoli che assomiglia tanto, da quasi, alle costruzioni di fantasia realizzate dai miei bambini col mezzano e le scorte di plastica.

In quei loro pasticcini, arditissimi giochi, mentre io sto chino a battere i tasti della macchina da scrivere, stazioni di servizio, Mo-

Metanopoli e qualcosa di loro, immagino, cerca per queste corse la giusta virata per Tokio.

Se voglio vedere l'interno della chiesa? Altro che! Lì mi aspetta una Via Crucis del Fazzini, scolpiti bronzi d'una consulenza e pura drammaticità. E dietro l'altare la luce cade che piace da un Fermo di incommensurabili.

Ora ci incamminiamo verso la Metanopoli vera e propria, guardando le macchine che fanno le fila davanti al distributore di metano. Mi viene in mente un facile neologismo, naturalmente, ma forse chi si da questo esiste.

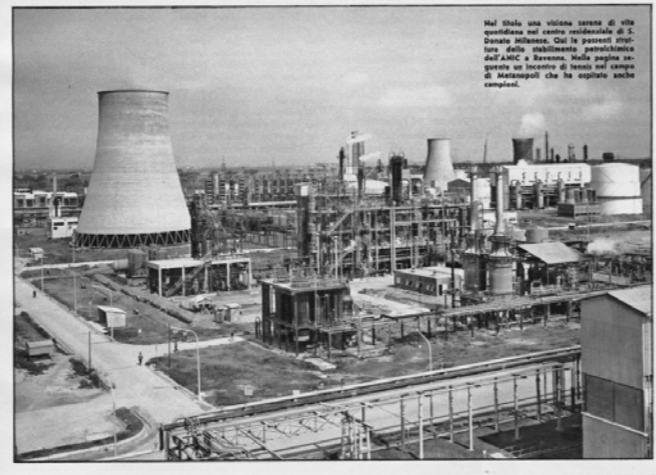
La prima grossa emozione la prova nella zattera sulla dirottata di via S.N.A.M. Progetti, 500 o forse più tavoli da disegno e ognuno al suo posto, in silenzio, come dietro un lenzuolo, per addormentarsi di Heinegger. Ho scelto, non a caso, un musicista deliberatamente orientato verso l'evoluzione delle energie dinamiche della vita moderna. E

mi torna in mente quel suo brano sinfonico anni caratteristico, Facile 231, che è la riproduzione sonora della vita di una locomotiva americana, resa con trascendente tecnica di orchestrazione.

Mi interessa sapere qualche rapida notizia sulla Scuola di Studi Superiori sugli Idrocarburi destinati a quei giovani che aspirano alle carriere tecniche ed economiche di concetto. Non si tratta, come credeva, di un istituto di specializzazione per l'approfondimento culturale concentrato su singoli temi, ma di una scuola per l'aggiornamento degli orientati intellettuali, sia pure diretto verso ben precisi fini professionali. Essa ha come scopo di permettere annualmente a un limitato numero di giovani laureati italiani ed esteri, rigorosamente selezionati, di allargare le loro conoscenze scientifico-tecniche ed economico-amministrative, in relazione alle esigenze delle in-

dustrie degli Idrocarburi, della Chimica e dell'Energia.

Gli studi hanno la durata di un anno accademico. Cinque mesi di conferenze, corsi e lezioni che servono a preparare un personale intellettualmente vivo e aggiornato, senza la necessità di inutili ritorni. Ma assai tutto il tempo di ritornare sopra. I miei figli per adesso restano nelle tranquille acque delle elementari. E San Donato si allontana coi suoi centri industriali, scientifici e commerciali, i suoi quartieri, le sue attrezzature sportive, i suoi negozi. Ho compreso qualche cartolina illustrata per « Sabati da Metanopoli », bomboni sul salutare, i ragazzi con le loro distate che implorano l'autografo, le madri alle finestre che scendono il capo come per dire che a Lago, baste guardarsi intorno, le Soghe si aprono. L'azione si svolge in un Luna Park e si impara in una curiosa lettera che ha per posta la ragazza di un stratego.



Nel titolo una villosa scena di vita quotidiana nel vicino residence di S. Donato Idreassa. Qui le passerie strutturali del stabilimento petrolchimico dell'ANIC a Ravenna. Nella pagina seguente un incontro di lavoro sul campo di Metanopoli che ha ospitato anche l'autografo.

2.



Left page:  
1. Agip motels advertising  
2. Gatto Selvatico magazine, 1961

Left:  
ANIC Plant, Gela

Up:  
ANIC Village, Gela



The holiday villages, on the other hand, are very different. The Agip marine colony in Cesenatico, dating from 1938 and designed by Giuseppe Vaccaro, and the Borca di Cadore village, designed by Edoardo Gellner and built from 1954 onwards.

Moved by the desire to ensure workers a certain standard of living, Mattei decided to build a village designed not only for children, like the colony in Cesenatico, but for the whole families, in Corte di Cadore, in Veneto. "His idea was to create a company village in Cortina d'Ampezzo because he said: "my collaborators, from the manager to the employee to the worker, must be able to say: I am going to spend my holidays in Cortina d'Ampezzo this summer or winter""<sup>1</sup>

On 200 hectares of land, Gellner designed 600 small detached houses, a holiday camp for 600 children, a campsite with fixed tents, two hotels and a church designed together with Carlo Scarpa.



**Left page:**  
Villette monofamiliari e campeggio a tende fisse, Borca di Cadore, 60's

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-TAB. 48bis "Importazioni di prodotti finiti e di semilavorati"  
-TAB. 52bis "Esportazioni greggio prodotti e semilavorati"  
-TAB. 61 "Capacità dei principali impianti delle raffinerie"  
-TAB. 67 "Lavorazione di greggio delle singole raffinerie"  
-TAB. 68 "Lavorazione di semilavorati delle singole raffinerie"  
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-Elenco delle strutture marine installate nell'offshore italiano

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