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## OILANDSCAPES. Agro-energy parks to create social inclusion in Adriatic-Ionian oil meshes

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### Abstract

The paper explores the role of oil infrastructures (upstream, midstream, downstream) in the light of the imminent territorial restructuring due to the Third Industrial Revolution. New socio-economic and energetic dynamics are going to reshape the Second Industrial Revolution's landscapes. It will be necessary to overcome the common vision of oil infrastructures as punctual elements which scatter the territories, so as to recognize their potential as "oil meshes" spread over vast territories. This will contribute to define innovative local development scenarios, integrating socio-ecological dimensions to ancient oil infrastructures (OILANDSCAPES). The paper proposes "Agro-energy parks" as a possible model to reconvert oil meshes through multi-scalar design tools (territorial/landscape/urban/architectural) aiming to couple renewable energies' production processes to social inclusion.

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*Keywords:* oil industry; infrastructures; landscape; territorial restructuring; multi-scalar design; social inclusion.

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### 1. Energetic infrastructures and industrial revolutions: two sides of the same coin

Energy production is a topic closely related to industrial revolutions. The mechanization of industrial processes, which firstly spread in England at the end of the XVIII century, required a lot of energy obtained through a wide use of carbon-fossil resources. During the last two centuries, the greater or lesser availability in the subsoil of these

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components completely redefined the geo-political equilibrium among European and non-European countries and became one of the first issues for the definition of a socio-economic development of entire regions. From the beginning of the industrialization era until today, the extraction of carbon-fossil resources has required the investment of huge amounts of funds, because the deployment of a widespread infrastructural network is necessary. In particular, two kinds of infrastructures are fundamental: mobility and energetic infrastructures.

According to different infrastructural planning strategies, we are able to recognize two principal technological innovations in energy production which differently influenced mobility and energetic infrastructures' planning. Thus, quoting the international renowned American economist Jeremy Rifkin [1], our industrialization era has experienced, up to now, two principal industrial revolutions, characterized by peculiar energetic, mobility and communication infrastructures, which can be summarized as follows:

- The First Industrial Revolution was entirely dominated by the transformation of thermal energy into mechanical energy through coal-steamed powered engines. The abundance of some European regions in coal, such as Germany, Belgium and Great Britain, was the principal carrier of the first developed industrial regions. These areas did not necessary coincide with the most important cities of the countries, so this event radically transformed rural areas in densely inhabited urban centers and, in parallel, gave a boost to new mobility infrastructures' implementation, like railways. The urban model which derived from the First Industrial Revolution corresponds to dense urban cores surrounded by worker-class residential areas in the periphery, built up in proximity of coal-mining areas
- at the end of the XIX century, coal was substituted by oil as the principal resource for energy production and this event marked the transition from the First to the Second Industrial Revolution. But oil was not so spread in the subsoil as coal in industrialized European territories, so most of European countries, at the beginning of the XX century, decided to adopt colonialist political strategies against North African and Middle-Eastern countries so as to directly control its extraction and its market. In the meanwhile, they had to infrastructure their native coasts so as to harbor oil coming by oil-tankers from abroad, since downstream and refining processes can be carried out everywhere. Thus, Mediterranean countries, and in particular Italy, adopted some economic development policies apt to specialize certain underdeveloped regions in refining and petrochemical sector. The results have been the appearance of several refineries and oil-based power plants in proximity with new harbors along European Mediterranean coasts. In a period deeply rooted in positivist thought, industrialization was seen as an opportunity to boost weak agricultural and underdeveloped economic situations and to solve hygienic and sanitary problems of some marshy wetlands through vast land reclamations. One of the most representative Italian case study is Porto Marghera harbor, lying on the Venice Lagoon. Its first project dates back to 1917 and it perfectly describes the above mentioned fascist territorial planning strategies. If downstream oil sector brought on Western Mediterranean coasts harbors and huge industrial districts, midstream activities implemented energetic and mobility infrastructures in a wider scale. In fact, lots of kilometers of underground pipelines, railways, roads and waterways were realized to provide the vastest territory with petroleum products. After World War II, the increasing economic well-being made automotive industry accessible to a wide spectrum of users, so boosting the implementation of individual mobility infrastructures such as highways. The second industrial revolution led urban planning models to pander the Keynesian oil-based consumerism, so as to amplify energy and individual transport needs, settling low density residential neighborhoods far from dense city cores, in those areas which we normally call 'suburbs'.

To sum it up, the two industrial revolutions we have experienced up to now, both based on carbon-fossil resources' exploitation, have been managed by a top-down hierarchical system, where only very few private pockets and public investors have been able to build infrastructures and own the entire energy processes, from resources' extraction to their transformation and distribution to final consumers.

## **2. From oil infrastructures to oil meshes**

Currently, even if we are still living in a mostly centralized oil-based energetic culture, it is undeniable that, on Western Mediterranean coasts, we are witnessing a growing crisis of downstream oil sector due to [2]:

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