

inhabitants must include a specific plan at the municipal level concerning the use of renewable energy sources , which is the Municipal Energy Plan (PEC).

Presidential decree 412 provide for the identification of the climate zone and of degree-days; the classification of buildings according to their intended use; it fixes the maximum values of the ambient temperature in winter according to the use destination. It also define the performance of the building and its energy systems.

The regional law 4/2007 promotes and stimulates the energy and environmental sustainability in the public and private buildings and define the evaluation protocol to be used (Biover 2 from ITACA).

The regional law on the thicknesses of walls and floors (no. 21/96), which allows exemptions from the minimum distances between buildings and volumetric deduction to promote the thermal insulation of buildings;

The Regional law 14/2009 promotes measures to support the housing sector through interventions aimed at improving the quality of housing to preserve, maintain, restore and revitalize the existing building as well as to encourage the use of sustainable and renewable energy sources

1.2. Current spatial and energy planning in pilot area

1.2.1. Urban Planning – regional and provincial plans

Territorial Coordination Plans (PTC) are urban plans that can be defined as the 1st level of planning. The planning worked in this planning instrument is of great choices, the strategic decisions concerning road infrastructure, areas of environmental concern to safeguard and assumptions of urban development. There are two types of territorial plans the Regional territorial coordination plan (PTRC) and the Provincial territorial coordination plan (PTCP).

- In current regional plan (PTRC), the matter of energy is poorly developed and it is only sketched out in the section of implementing the technical standards under title IV - Energy and Environment – with general statements about need to upgrading the energy efficiency of urban systems / location of thermoelectric power plants / development of renewable energy sources / localization PV systems and under Title IX – Veneto Mountain - about civic land-use and collective properties, energy self-sustainability. PTRC foresees as well the realization of a strategic plan named “Dolomiti and Veneto Mountain” such plan is currently yet to be drafted therefore it could be an opportunity to develop a strategy for building culture, RCLE and energy. in the same way landscape plans foreseen in the PTRC will be drafted in the incoming period and could be an opportunity to include measures improving the availability of natural resources to develop RCLE for energy and construction materials ((i.e. water, wood, stone) and at the same time could be an opportunity to re-think restrictions in building transformations;
- In current provincial plan (PTCP Belluno Province) the topic of energy is instead pretty much developed. The provincial plan promotes: the implementation of energy efficiency projects; the realization of

interventions in eco-building and improvement of the energy performance of the building; the exploitation of local energy resources and the creation of short supply chains for biomass of plant and animal origin as an important income to support agricultural and forestry holdings; a combination of production-consumption of energy consistent with environmental protection; the rational use of energy and energy saving. The plan includes as well guidelines for municipalities drafting a Building Code aimed at energy savings and environmental sustainability.

1.2.2. Municipal and Inter-municipal urban planning.

Since 2004, the master plan at the municipal level has been divided into two separate documents: 1. A strategic document called “Plan of Territorial Government” (PAT) defining the strategies for the urban development of the interested territory; 2. An operative document, called “Intervention Plan” that is an action plan for a 5 year programming period. Furthermore the Veneto regulatory framework foresees the possibility for small / medium municipalities instead of drafting their own PAT to join together in drafting a common “Plan of Territorial Government” (PATI) as tool for integrated management of urban planning and integration of policies of local government. This is the case of the choice done by the five Municipalities in Veneto Pilot Area that are currently drafting a PATI called “Alto Agordino”. Municipalities that have chosen to draft a common PATI may also decide to draft a common Intervention Plan (PI). This is not the case of “Dolomiti Alto Agordino” nevertheless the planners has introduced the possibility to draft specific common strategic interventions plans (PICT) through which two or more municipalities can jointly plan interventions on geographical or thematic areas of common interest. Development of a PICT on energy use in the municipal territory could be the focus of our case study and pilot implementations. By an analysis of current content of PATI the topic of energy is only incidentally considered. Nevertheless from a sector studies on Tourism and hospitality sector emerge a strong interest of hotel operators to improving the quality of their offer and reduce management costs of their building stock also by retrofitting and by obtaining an environmental sustainability label. Results are expected to be published in April 2014 and will provide for an assessment of owner’s propensity to invest in energy efficiency measures distinguishing between investments that they are willing to do by themselves and those that would need public incentives. Strategies could be investigated as well with reference to energy savings and efficiency in public buildings, heating networks and smart grids.

1.2.3. Energy planning

A regional energy plan has been recently adopted. Among the actions, the plan foresees: 1. incentives for the replacement of obsolete heating systems, including the creation of district heating networks fed by cogeneration plants or heat pumps in densely populated areas; 2. Incentives for the energy qualification (development of renewable energy, energy savings and energy audits) with particular reference to public housing; 3. Promotion of energy performance (development of renewable energy sources, energy saving and efficiency) of equipment and vehicles. Provincial administrations is in the process of drafting a provincial energy plan. Municipalities in pilot area are not required to produce any energy plan (compulsory only for municipalities above 50.000 inhabitants).

1.3. Other Sector plans

Regional Plan for the protection and remediation of the atmosphere - The Plan is the tool for the planning, coordination and control in the field of air pollution, aimed at gradual improvement of the environmental conditions and the protection of human health and the environment. The actions and decisions of the plan on energy target a continuing reduction in emissions of all the macro-and micro-polluting. The plan support a more efficient use of energy sources and a more efficient use of the energy produced, including district heating, cogeneration, energy saving. The plan highlight that an increase of use of wood biomasses should be carefully considered because of the production of air pollutants (micro-particles) and supported only with regard to use of advanced technologies and district heating. With regard to biomasses the plan support the anaerobic digestion and production of biogas.

The Regional Development Plan - The Veneto Region, in setting its planning objectives in the energy sector conforms to the framework of the EU energy policy guidelines and national level including: reducing energy consumption and promoting renewable sources.

2. Potentials for harmonizing of current spatial and energy policies and planning instruments in veneto

From the analysis conducted in AlpBC clearly emerged that the issues of the rational use of energy, energy saving and use of renewable sources are currently poorly developed in the spatial planning regulatory framework of the Veneto Region, consisting mainly:

- by the regional planning law (no. 11/2004), in which energy issues are mentioned only in general terms of environmental sustainability of urban development plans;
- by the regional law for the enlargement and retrofitting of existing buildings (no. 14/2009), in which the volumetric incentives are tied to the achievement of sustainability requirements (protocol ITACA) including energy efficiency and use of renewable;
- by the regional law on sustainable construction (No 4/2007), fixing the environmental sustainability criteria for access to regional funding and foreseeing the integration of contents of the Building Code;
- by the regional law on the thicknesses of walls and floors (no. 21/96), which allows exemptions from the minimum distances between buildings and volumetric deduction to promote the thermal insulation of buildings;
- by the new spatial plan for regional coordination indicating general strategies for better use of energy, for energy requalification and sustainability of settlements.

This regulatory framework should therefore be updated and integrated, to ensure:

- better coordination and an appropriate link between the policies and strategies of territorial government – defined by urban and territorial planning instruments - and those contained in the sectoral plans (municipal energy plans, action plans for sustainable energy)

- the revision of contents of territorial government instruments by including issues related to energy, so as to make possible the development of policies aimed at energy saving and retrofitting of settlements in the territories of the municipalities also not required or not engaged in the preparation specific energy planning tools.

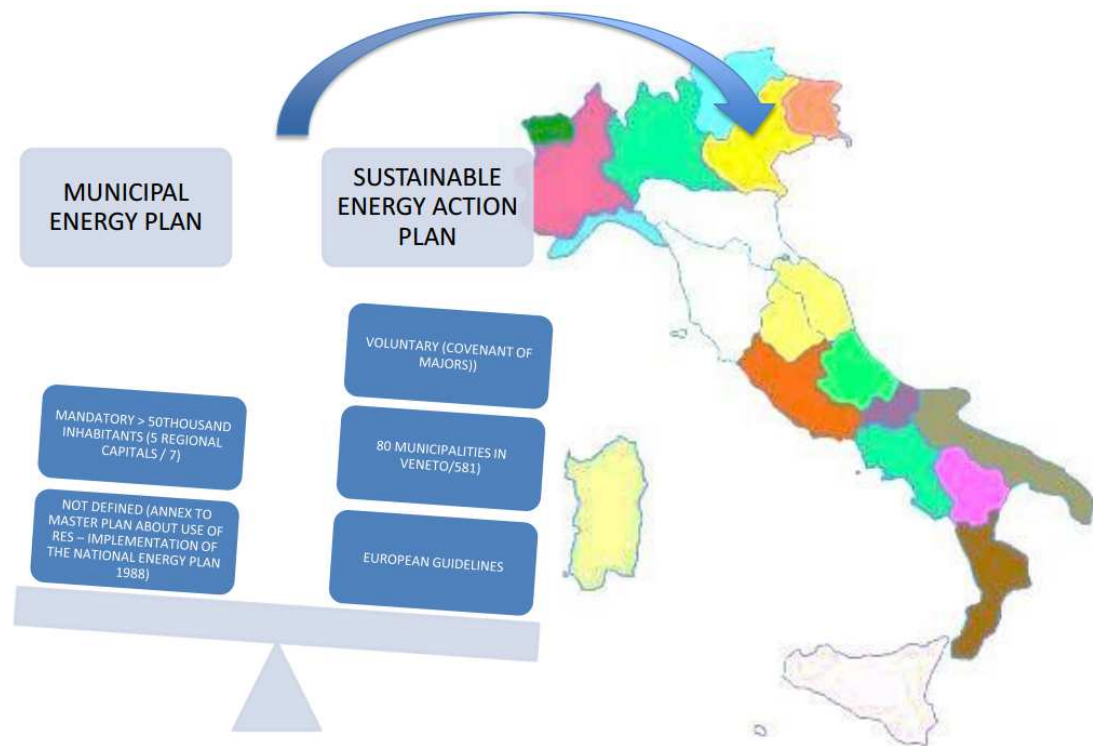


Fig. 1 – Instruments for Energy Planning at municipal level in Veneto Region

The improvement is to be achieved taking into account some criteria:

- it is necessary to carefully select what objectives - relating to energy issues - can reasonably be enforced through an instrument of territorial government, providing as well for concrete tools to reach them and avoiding general statements of principles or unreachable goals;
- it is necessary to avoid putting excessive additional burdens on local governments - already struggling with serious financial problems - selecting only the minimum datasets needed and that are easy to collect with low costs and commitments (technical, administrative, temporal).

In the planning system of the Veneto Region the instrument of urban planning is the municipal regulatory plan (PRC), which is composed of a strategic-structural part - the Plan of Spatial Planning (PAT) - and an operative-programming part, the Plan of Interventions (PI). The PAT indicates, based on ten-year forecasts, strategies and guidelines of territorial development.

The PI translates the indications of PAT in transformation actions and schedules for their implementation (new settlements, requalification, changes of use, public works, etc..) within five years after which those transformation actions that are not made cease to be effective.

Both instruments are subject to evaluation processes regarding the sustainability of the provisions under the hydraulic, geological, environmental, seismic point of views but not energy.

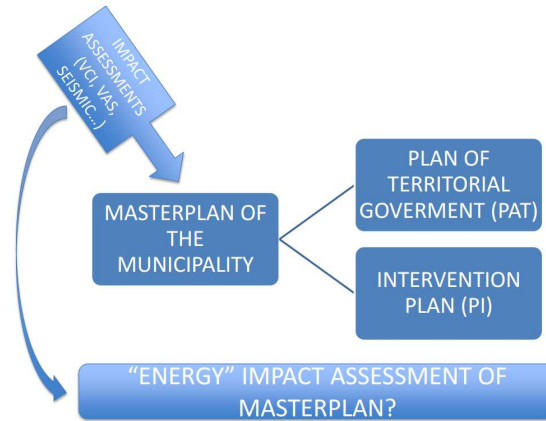


Fig.2 – Current evaluation process of the urban planning system in Veneto Region

To allow an assessment of the contents and provisions of the municipal regulatory plan in terms of energy is therefore required an integration of the plan in all its components.

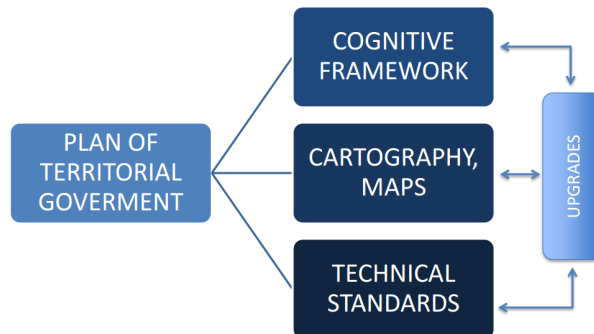


Fig.3 – Components of the current plan of territorial government to be upgraded to allow for a strategic energy assessment

The informative bases that form the cognitive framework (QC) of the plan should be completed with the necessary data to determine the current state of art, thus being able to develop strategies and actions – within the scope of the actions of the instrument of territorial government - which enable the achievement of the objectives of improving the sustainability of territorial transformations from the point of view of energy, in close connection and synergy with the actions proposed by the energy sector plans (Sustainable Energy Action Plan, Municipality Energy Plan), where present.

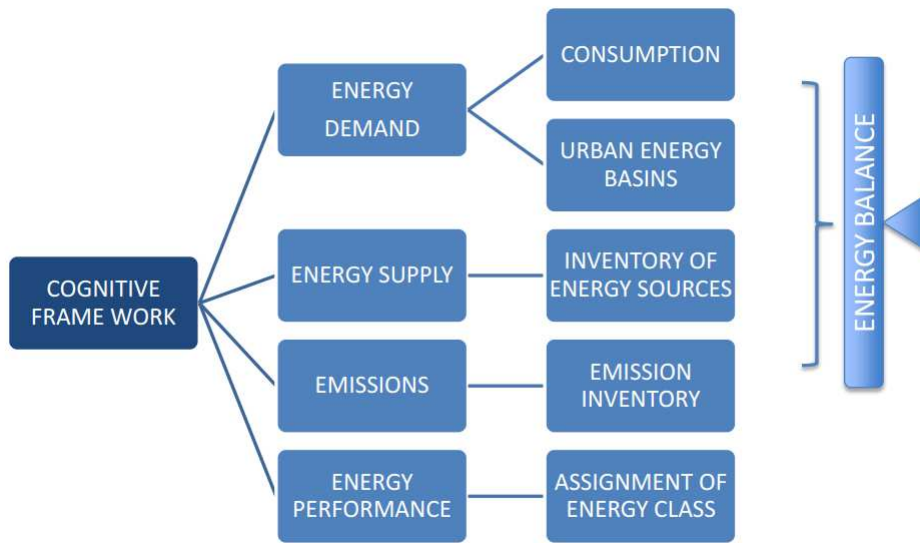


Fig 4 – Needs for integration of the current informative bases of the plan of territorial government

The strategies and actions must then be translated into town planning and building rules (legislative guidelines, directives, prescriptions, performance requirements, design solutions, etc.). Through the integration of normative and cartographic contents of the plan.

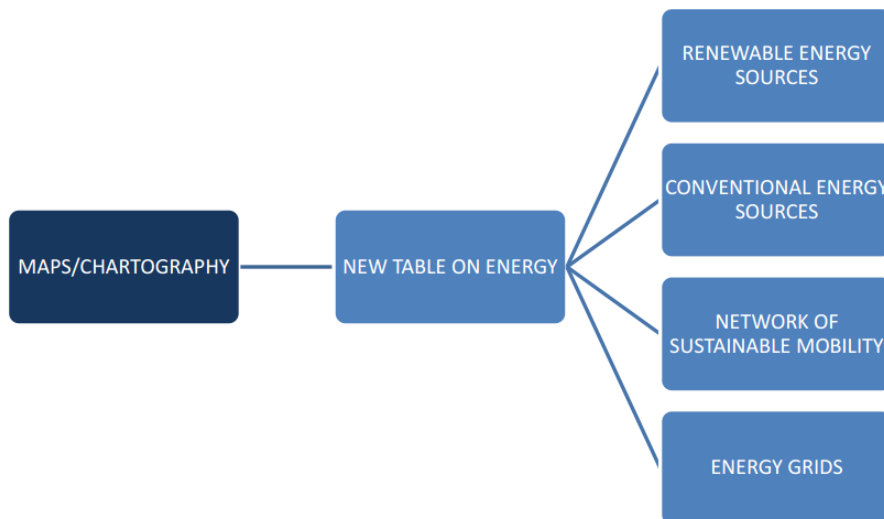


Fig 5 - Needs for integration of the current cartography bases of the plan of territorial government

The planning strategies oriented to energy efficiency and sustainability could affect the territory of a single municipality, or that of several municipalities through the drafting of inter-municipal plans. In the second case the effectiveness of the strategies and actions will be enhanced by the ability to better coordinate the use of resources and management of the synergistic potential and opportunities offered by the various territories concerned.

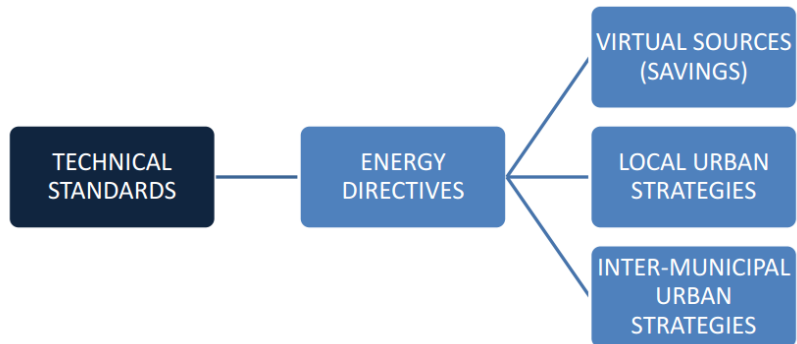


Fig 6 - Needs for integration of the technical standards of the plan of territorial government

Local strategies oriented to sustainable energy can relate to the urban scale (control of the expansions, balancing of the functions, recovery of the settlements, the rationalization of the network of mobility, etc.) as that of the building scale (bioclimatic design, NZE buildings, etc..).

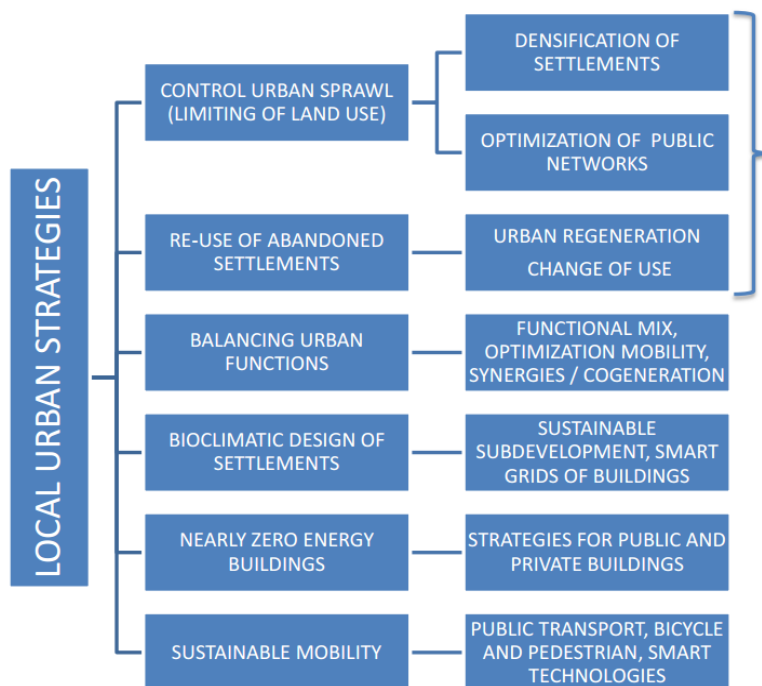


Fig 7 – Local strategies oriented to sustainable energy and their relation to the urban and building scales

The inter municipal strategies are aimed at the integrated management of resources, and have as their main objective the creation of smart grids, capable of balancing the sources and uses of energy, to improve the overall energy efficiency and to monitor the results of the actions of the plan. In an inter municipal scale is also possible to bring into play the mechanisms of incentive and territorial compensation useful to trigger joint initiatives and good practices of cooperation between local governments.

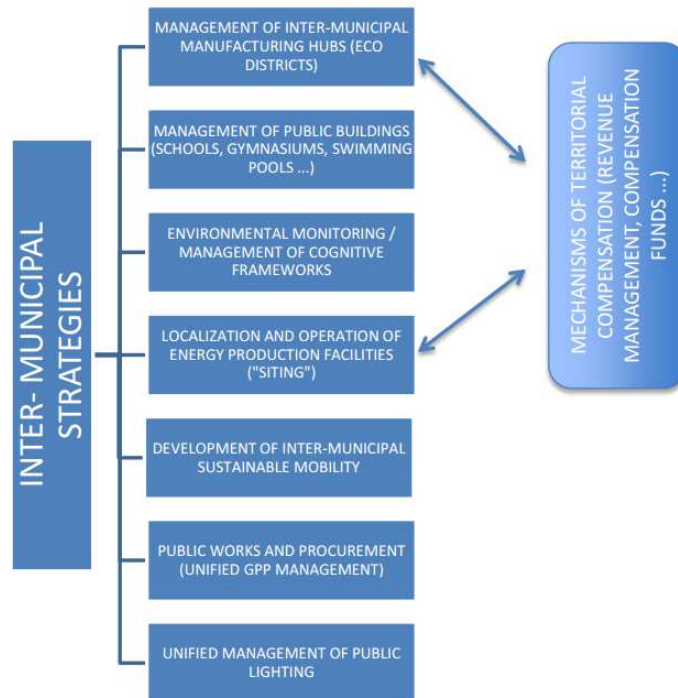


Fig 8 – Inter municipal strategies for the integrated management of energy

The municipal and inter municipal strategies are then declined at the operational level through their translation into concrete measures of intervention planning and rules for territorial transformations. It is especially at this planning stage that interactions and possible synergies with energy sectoral tools (SEAP, PEC) should be found, through the coordination of actions foreseen by plans at the different operational levels.

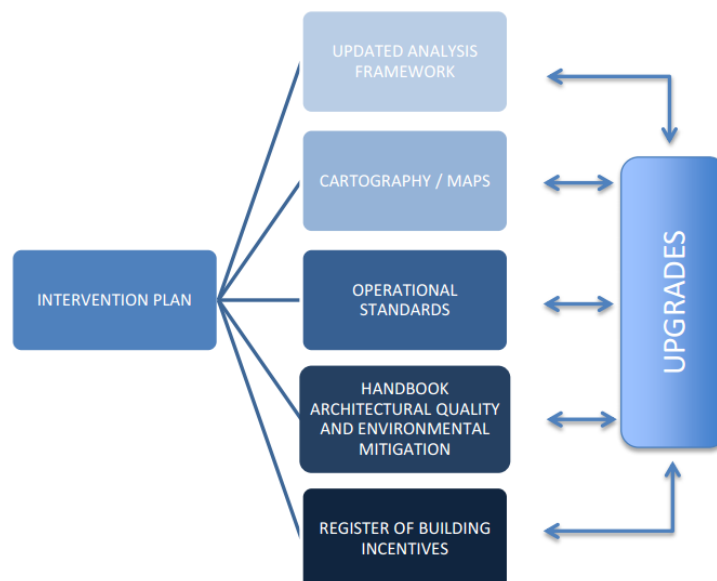


Fig. 9 – Translation of inter municipal strategies into concrete measures of intervention planning and rules for territorial transformations

Each component of the intervention plan may be the subject of content integration. The eventual provision of a specific energy Annex to the plan can be useful - in particular - in the municipalities with no specific energy planning tool (SEAP, PEC). The building code is, finally, the document which shall contain the technical rules necessary for a design aimed at environmental sustainability and energy efficiency of buildings.

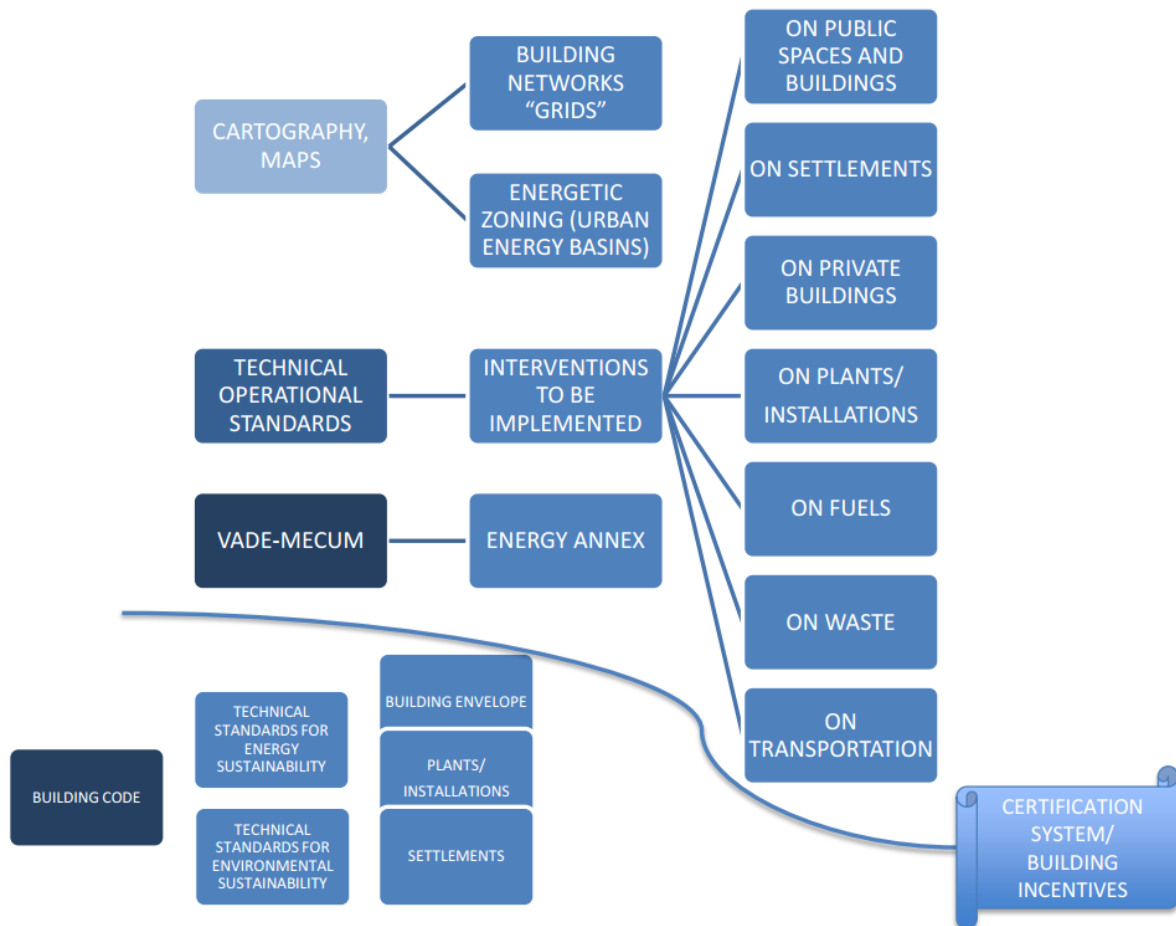


Fig 10 - Translation of inter municipal strategies into rules for territorial transformations

The integration of planning instruments should be preceded and supported by a review of the regional discipline.