



## E<sup>2</sup>Port



[Home](#) [Sitemap](#) [Powered by ZK](#)

E<sup>2</sup>Port is a comprehensive model to assess consumption and environmental impacts of ship activities in port and at sea. In particular are evaluated:

- emissions of air pollutants in port;
- fuel consumption and emissions of carbon dioxide in port;
- emissions of air pollutants at sea from port to port;
- fuel consumption and emissions of carbon dioxide at sea from port to port;
- noise in port environment;
- emissions of air pollutants from ground support equipments;
- fuel consumption and emissions of carbon dioxide from ground support equipments;
- emissions to air and water from other port activities (dust from materials handling, fuel handling, ship repair).

At present the features related to the energy consumption, to the air pollutants and greenhouse gases emissions in port and at sea have been developed. In this context, the model incorporates the previous AirShips model dedicated to emissions of air pollutants.

E<sup>2</sup>Port evaluates the energy consumption and air pollutants (sulfur oxides, nitrogen oxides, volatile organic compounds excluding methane, carbon monoxide, particulate matter with diameter less than 10 microns and 2.5 microns, heavy metals ) and carbon dioxide emissions produced by the movement and berth of ships in port and at sea.

E<sup>2</sup>Port was originally developed by TECHNE Consulting based on the methodology developed under the project MEET and recently updated in collaboration with the Task Force on Emission Inventories and Projections of the Convention on Long - Range Transboundary Air Pollution. E<sup>2</sup>Port evaluates the estimated energy consumption and emissions on a single port or shipping line or area.

E<sup>2</sup>Port splits the maritime activity among the following phases: (a) approach and docking ports, (b) berth in port, (c) departure from port and (d) navigation. In particular, the phase (a) start when the ship begins to decelerate and ends when moored, while the phase (c) begins when the ship free from its moorings and ends when it has reached cruising speed.

Fuel consumptions and emissions at the wharf continue even at ship's arrival in port (in berth). Indeed energy must be produced for auxiliary services (lighting, heating or air conditioning, pumps, refrigeration, etc.). To satisfy this demand for energy, are usually used one or more steam boilers operating in reduced power and consequently consumption. However, some steam ships using diesel engines for auxiliary power supply ancillary services. In terms of fuel consumption and emissions can be identified two phases of operation (a) e (c), a stationary phase (b) and a cruise phase (d). To estimate fuel consumption and emissions in detail must be included in E<sup>2</sup>Port number of days and hours spent in different stages of navigation for each class of ship fitted with different engines and using different fuels.



## E<sup>2</sup>Plan



E<sup>2</sup>Gov



E<sup>2</sup>Port



E<sup>2</sup>Road



E<sup>2</sup>Diffusion



E<sup>2</sup>Airport



E<sup>2</sup>Impact



E<sup>2</sup>Polis CO<sub>2</sub>

E<sup>2</sup>Plan is a complete system for Environment and Energy Planning developed by Techne Consulting.

The system was founded originally as a system aimed to study air pollution (AirSuite) and has evolved over the years towards a system for integrated assessment in different environmental media under the name EnviPlan.com.

The new version in the Web environment E<sup>2</sup>Plan released at the end of year 2010 by Techne Consulting extends the functionality of the system to the environment and energy government by managing and processing basic data and indicators, evaluation models and diffusion, transport and transformation of pollutants models.

E<sup>2</sup>Plan is designed as a complete support system in energy and environmental planning and includes:

- the system for managing and processing data and basic indicators in the fields of energy and environment, the development of inventories of emissions and energy balances and their future projections (E<sup>2</sup>Gov);
- models for the evaluation of driving forces, energy consumptions and emissions from road transport (E<sup>2</sup>Road), air transport (E<sup>2</sup>Airport) and shipping (E<sup>2</sup>Port);
- the model for the evaluation of energy consumption and emissions of carbon dioxide (CO<sub>2</sub>) in municipalities and to support the Covenant of Majors (E<sup>2</sup>Polis CO<sub>2</sub>);
- the system for assessing "quick" energy consumption and pollution E<sup>2</sup>Impact;
- the interface to the models for the assessment of transport and diffusion of pollutants in different media (air, water, soil) E<sup>2</sup>Diffusion.