

It is possible to evaluate the minimum energy necessary for a spacecraft to reach the orbit of a planet.

The total energy of the solar system and the spacecraft is a conserved quantity for each trajectory, because of the dissipative forces are negligible.

So that for each initial orbit of the Earth (with unknow mass of fuel) and a final orbit of the planet (with zero fuel mass, for the absolute minimum condition) the unknow mass can be evaluated knowing the kinetic energy of the planets (in the initial point and the final point) and the total potential energy (in the initial point and the final point).

So that if the trajectory along the interplanetary transport networks (or other complex trajectories) connect the final point to the initial point (with a flight time greater of an estimated time - for example some years - and knowing the planetary positions with their energies with calculation tables), then the minimum fuel mass can be evaluated: it is possible to evaluate the minimum fuel to reach a planet using each initial position, and each final position for a planet.