Developing a future sustainable refuelling station network is the next important step to establish hydrogen as a fuel for vehicles and related services. Such stations will most likely be integrated in existing refuelling stations and result in multi-fuel storages with a variety of fuels being delivered, stored and distributed, as e.g. biomass based methane, ethanol, gasoline, diesel as well as the traditional crude oil based products. Hydrogen is also in play as intermediate energy storage to secure the power supply based on large shares of fluctuating energy sources and as an intermediate to improve the quality of biomass based fuels. Therefore, hydrogen supply and distribution chains will likely not only serve to fulfil the demands of refuelling, but may also be important for the wider electrical power and fuel industries. Based on an integrated hydrogen supply and distribution network, the application of the method of "Functional modelling" is discussed in this paper to show the complexity of the coupling between power storage for electricity supply and supplying hydrogen for transportation. It will be shown how a "Functional model" can be applied for comprehensive data storage for various assessment methodologies, and how functional models could support coherent risk and sustainability (Risk Assessment, Life Cycle Assessment /Life Cycle Costing) assessments, in order to find optimal solutions for the development of the infrastructure on a regional or national level.