

Dear Sirs,

I am pleased to reply to your public consultation on “Green Paper on a 2030 framework for climate and energy policies” (attached Romeri\_2013\_Consultation.PDF file).

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## 1. Contributor Information

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## 2. Introduction

I am pleased to reply to your public consultation on “Green Paper on a 2030 framework for climate and energy policies”.

During recent years, I focused my interest on Hydrogen energy vector, Fuel Cell and related clean technologies. For this reason in my comment to the “GREEN PAPER on a 2030 framework for climate and energy policies” regarding these technologies, with special attention to the transport and power generation applications. The comment answers in a synthetic way to questions suggested (from n. 4.1 to 4.5).

## 3. Comment

According to IEA “Redrawing the Energy-Climate Map” (2013) the world is not on track to meet the target agreed by governments to limit the long-term rise in the average global temperature to 2°C. Policies that have been implemented, or are now being pursued, suggest that the long-term average temperature increase is more likely to be between 3.6°C and 5.3°C. To keep open a realistic chance of meeting the 2°C target, intensive action is required.

From longtime I underlined the possible relevant implication of Hydrogen and Fuel Cell use in stationary and transport applications and, in recent years I presented different works in which I argued that it's time to consider Fuel Cell Vehicles (FCVs) as a relevant possible solution in energy debate and energy policies (among other see: presentation “Consideration about Hydrogen Fuel Cell Powertrain Levelized Cost of Electricity” CARS 21 Public Hearing 2012, EC-DG Enterprise and Industry, Brussels, <[http://ec.europa.eu/enterprise/sectors/automotive/competitiveness-cars21/cars21/public\\_hearing\\_en.htm](http://ec.europa.eu/enterprise/sectors/automotive/competitiveness-cars21/cars21/public_hearing_en.htm)>, available at <

62f5-419c-93b4-a73627c311a1/ROMERI%20FCV%20CARS21%202012%20DEF.pdf> and paper “Consideration about Hydrogen Fuel Cell Powertrain Levelized Cost of Electricity in the European Context”, 12th IAEE European Energy Conference “Energy challenge and environmental sustainability”, 2012 Venice Italy, <<http://www.iaeeu2012.it/index.html>>, attached).

In my analysis I chose to consider the Hydrogen Fuel Cell Powertrain (H2FC Powertrain) as “Power Generation Plant” because, if the U.S. Hydrogen and Fuel Cell Program is able to meet all the 2017 technological targets fixed for Vehicle, in the subsequent year, the high volume associated with the FCVs mass production (up to 500.000 units sold per year) will permit to reduce dramatically the Fuel Cell system manufacturing costs, in order to be competitive with gasoline in Hybrid-Electric Vehicles (HEVs).

Every day more than 90% of vehicles are parked, even during peak traffic hours. In this situation the vehicle power generation system H2FC Powertrain, if properly equipped, could become a new power generation source, supplying electricity to homes and to the grid like a new type of distributed generation: Vehicle-to-Grid (V2G).

If FCV, properly equipped and parked in V2G mode, become a new power generation source supplying electricity to homes and to the grid, it could be useful to analyze the H2FC Powertrain relevance in the power generation sector. But, in my opinion, in mass production perspective, H2FC Powertrain will be so cost competitive to be useful adopted also for stationary power generation application as a power generation plant, smart grid connected.

If the current U.S. Hydrogen and Fuel Cell Vehicle Program is able to meet all the 2017 technological targets the high volume associated with the FCVs mass production will permit to reduce dramatically the Fuel Cell system manufacturing costs and the H2FC Powertrain will be so cost competitive to be useful adopted also for stationary power generation application.

Using the 2017 DOE H2FC Powertrain data target the LCOE would be in a range of USD 107-207 for MWh and, in the U.S. context, for the lower value of this range it appears competitive with many of the power generation technologies considered. Using the U.S. data in European context confirm these considerations. In fact, with the 2017 H2FC Powertrain data target, the LCOE would be in a range of 82.3-159.2 EUR/MWh and the lower value of this range appears competitive with many of the power generation technologies considered.

Observing these H2FC Powertrain data, also in Europe, it will be necessary to think the FCVs link to energy sector considering also the possibility to utilize H2FC Powertrain as a Power Generation Plant, smart grid connected, with relevant and positive consequences for a rapid development of these break-through low-carbon technologies.

Despite these interesting results, in the current energy policy debate H2FC Powertrain is still not properly considered in the range of feasible power generation options, neither in a perspective of reduction of European energy prices, or energy efficiency, or security of energy supply.

EU transport has been the sector most resilient to reduce GHG emissions and also in this sector today H2FC Powertrain contribution is still not adequately considered. If so, contribution of transport sector to the GHG reduction target would be much higher.

Relevance of these data and possible consequences in EU economy, in terms of competitiveness, growth, and climate change mitigation through GHG emissions abatement are evident. I suggest better considering the H2FC Powertrain possible role, in a more co-ordinate approach, in an EU growing and low-carbon economy perspective (in the Kyoto Protocol Second Commitment Period and the Post-Kyoto frameworks).

With regard to the consultation, I suggest considering the opportunity to include H2FC Powertrain in the on-going work within the Commission of developing a 2030 framework for climate and energy policies, the Roadmap for moving to a competitive low carbon economy in 2050, the Energy Roadmap 2050 and the Transport White Paper.

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Confidentiality I kindly ask that only the attached paper “Consideration about Hydrogen Fuel Cell Powertrain Levelized Cost of Electricity in the European Context” (attached Romeri\_2012\_H2FCP\_LCOE\_EU.PDF file) remain “strictly confidential” and not published in the web.

Thank you very much for your kindly attention and collaboration.

Best regards

Valentino Romeri