

# STORHY FINAL EVENT HYDROGEN STORAGE SYSTEMS FOR AUTOMOTIVE APPLICATION

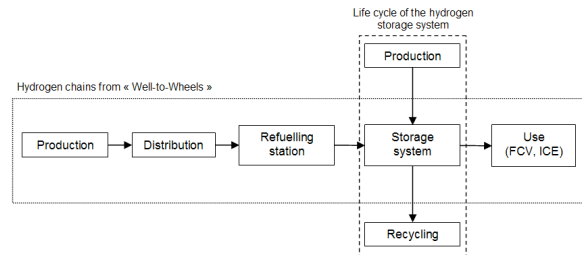
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## Overall Evaluation: Environmental Impacts

### Objectives

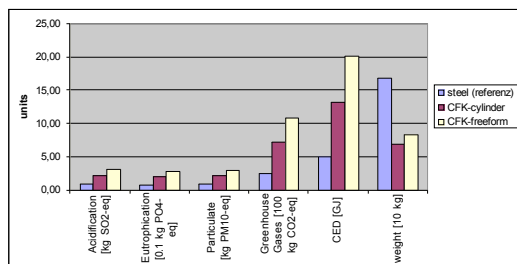
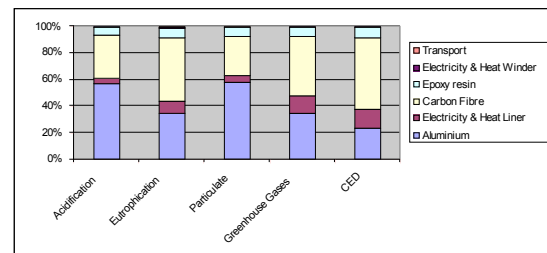
- The objective of this study was to assess the environmental impact of hydrogen storage technologies taking into account both hydrogen storage system life cycle as well as the environmental impacts related to the weight-induced additional fuel consumption.



### Achievements

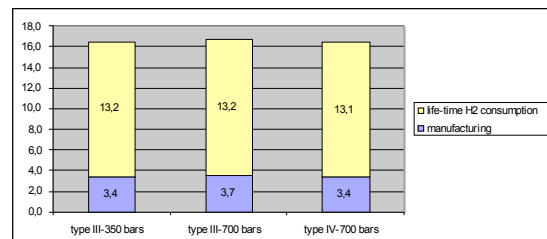
- From the collection of data close to STORHY partners, a preliminary evaluation of the environmental impact of compressed and liquid hydrogen storage systems was achieved.

- C-H<sub>2</sub> vessels life cycle:** The results show that the environmental impacts of Type III aluminium – made 350 bars storage vessels are dominated by the aluminium and carbon fibre production. Both account for approximately 80% of the overall results per impact category.






- L-H<sub>2</sub> vessels life cycle:** For all the environmental categories the carbon fibre tanks show higher emissions than the steel tank. This reason has to be seen in the credits from recycling for steel technology.

- The evaluation of the CO<sub>2</sub>-equivalent emissions for C-H<sub>2</sub> tank manufacturing and life-time hydrogen consumption (hydrogen from Steam Methane Reforming, pipeline distribution, compression at refuelling station) shows that tank manufacturing contributes for about 20% to the whole emissions.



### Perspectives

- For all storage technologies, recycling is of high importance; it can reduce significantly their life-cycle environmental impacts.
- At the time metal recycling is given a higher credit than carbon fibre, which influence the results. A material recycling of carbon fibre will enhance the environmental performance of type III and type IV compressed and lightweight composite made liquid hydrogen storage systems.

<b>Partners</b>	<ul style="list-style-type: none"> <li>Öko-Institut e.V.</li> <li>CEA - Commissariat à l'Energie Atomique</li> </ul>  
<b>Website</b>	<a href="http://www.storhy.net">www.storhy.net</a>
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