



ENERGY, ENVIRONMENT
AND SUSTAINABLE DEVELOPMENT

ECTOS
Ecological City
Transport System
(EVK-CT-2000-00033)

Deliverable no 13

*Transferability of the
Technology on a
pan-European level*

Responsible partner: Shell Hydrogen



Shell Hydrogen



ECTOS Project

Deliverable 13: Transferability of technology on European level

Introduction

When the ECTOS Project commenced, there was a considerable discussion that Iceland was a very special case and that results from Iceland might not fully apply to European level. The main issue in that discussion was the infrastructure. The infrastructure case of Iceland was thought to be very specific as Iceland was unique with renewable energy supply sources. A major consideration at the start of the ECTOS Project was whether the know-how from infrastructure, supply of the H2 fuel, construction of filling stations, homologation issues, regulations, etc could be transferred and be applicable to the European mainland.

Background

Construction of the filling station was completed and officially opened on April 24th 2003. The opening became an international event as INE combined the opening by hosting a conference "Making Hydrogen Available to the Public" during the period 24-25th of April. It was a very successful event, and although the buses had not yet arrived in Iceland.

The next major event was the arrival of the FC buses. The first two buses arrived in Iceland in late September 2003 and the third arrived mid October 2003. During the final days of September and most of October the vehicles were prepared for use in public service, maintenance staff and bus operators were trained, and the operation of the filling station 'fine tuned'. Formal operation of the filling station and buses began in late October 2003 and has continued to date. The ECTOS Project will conclude in August 2005 unless extended by the CUTE Plus Project.

Statement from DaimlerChrysler AG on operation of FC buses

"When this work was started there was a considerable discussion that Iceland was a very special case and that results from Iceland might not fully apply to European level for the FC buses and infrastructure. The buses have proved to run very similar to the ones at the nine CUTE sites in Europe. Experiences with the buses in Iceland and in the other European cities are very positive. Bus operators, drivers and passengers are very satisfied with the buses. Influences of topography, climate and other city-specific boundary conditions on the performance of the buses are being evaluated for the deliverables of the CUTE project. Results from the CUTE project will be available to the public in February 2006".

Statement from Norsk Hydro Electrolysers AS on operation of the infrastructure

"The technologies applied in the ECTOS project are basic hydrogen filling station technologies which are independent of the source of electric power. Similar or identical designs for the electrolyser and compressor/storage have been used in other European projects, like CUTE (Hamburg) and CEP Berlin. The dispenser design is a unique design for ECTOS, but the experience gathered is fully applicable to future filling station designs.

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Adverse climate conditions make the Iceland test a severe one for both components and systems, yielding valuable knowledge.

Learning from Reykjavik has already been applied to other projects. Within CUTE and ECTOS incident reporting is coordinated through the CUTE task force, and all safety related data have been freely exchanged. In addition, an electrolyser user group has been established by Hydro, including users in ECTOS, CUTE, CEP Berlin, and Hydro's own Utsira project, all using the same electrolyser technology. "

Conclusion

The overview gained from the regular six-monthly reporting at the CUTE/ECTOS Project Conferences on both the FC buses and infrastructure has shown that the technology works equally well in Iceland as in Europe and vice versa and is equally transferable.

This should enable Iceland to be also considered as a location for the mini-network lighthouse projects proposed for the next stage of a limited number of larger-scale demonstration projects in the EU with FCV fleets increasing to 100 vehicles and fuelled from a network of integrated H2 refuelling stations.