BENEFITS AND BARRIERS OF THE DEVELOPMENT OF RENEWABLE/HYDROGEN SYSTEMS IN REMOTE AND ISLAND COMMUNITIES

Introduction

The Hydrogen Implementing Agreement (HIA) has a vision for a **hydrogen future as part of a clean sustainable energy supply.**

This study investigation highlights

- some of the **drivers behind the niche markets** where hydrogen systems have already been developed, or are in the early development stages and;
- how these could be expanded and modified to **reach new markets**.

Full report available at:
http://iea-hia-annex18.sharepointsite.net/Public/Annex%2018%20papers%20reports%20and%20presentations/Niche%20Markets.pdf

Conclusions

- There are socio-economic benefits as well as technical reasons for developing renewable hydrogen systems in remote communities.

- The key drivers behind these projects are
  - ⇒ the need for **improved energy security**;
  - ⇒ protection against **high fuel costs**;
  - ⇒ the availability of **abundant renewable energy resources**.

- Hydrogen can **offer jobs**, **encourage tourism** and **engender community pride**.

- The cost of conventional fuel and the constraints on conventional uses of renewable resources make hydrogen more attractive.

- This niche market could also be a **springboard to more mainstream markets**.

- The main barriers found are:
  - ⇒ the **lack of mass produced, reliable, off-the shelf systems**;
  - ⇒ **funding** and **permitting** for systems;
  - ⇒ challenges in **design, installation and maintenance** of these projects due to location and a lack of local expertise.

- Although each individual system is small and insignificant, the number of islands or remote communities that could **benefit from renewable-hydrogen systems** in total represents a **significant market**.

- None of the barriers to hydrogen developing to its full potential are insurmountable, but they **require co-ordinated action from government, industry and communities**.

A more **co-ordinated approach** is needed to demonstrate the **market potential** and **develop expertise**. This would not only help local businesses expand but also attract manufacturers and encourage them to develop suitable designs and invest in mass production.

There are already developments in this direction:

- In British Columbia, a project is aiming to replicate successful technologies in 30 communities, **aligning itself with the needs of power companies** and **highlighting the size of the possible market**.
- The **European REislands** project aims to produce and disseminate information on sustainable energy with the goal of providing the information for island communities to use **100% renewable energy**.
- The European Islands Network on Energy and Environment **'Islenet'** is a network concentrating on the **development on sustainable energy resources** for Islands. The projects are mainly R&D or lobbying for climate change legislation.
- The **Nordic Network for Sustainable Energy Systems in Isolated Locations** is working to **improve the capability of energy-using communities** in isolated areas of the Nordic region to share knowledge, skills and access to funding. It acts as a link between local and international efforts.

Government Action
National and regional governments could actively support such initiatives by:

- **Facilitating permitting**, **safety** and **codes** and **standards development** appropriate for the size of project, ensuring staff are trained to apply them correctly,

- Ensuring a **holistic approach to funding** which includes and mandates education, communication and outreach, and takes into account the social and indirect economic benefits,

- Encouraging **partnerships and clustering in projects** rather than one-off approaches, ensuring this is reflected favourably in funding criteria,

- **Facilitating international business opportunities for communities** by actively supporting communities in exporting their systems or expertise.