

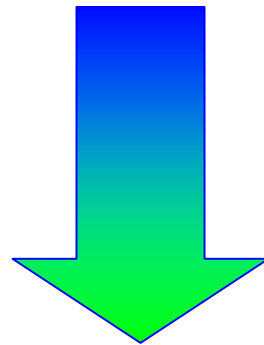


The NATURALHY project

Preparing for the hydrogen economy by using the existing natural gas system as a catalyst for delivery



The transition to the hydrogen-economy will be lengthy, costly and will require significant R&D



PRACTICAL STRATEGY

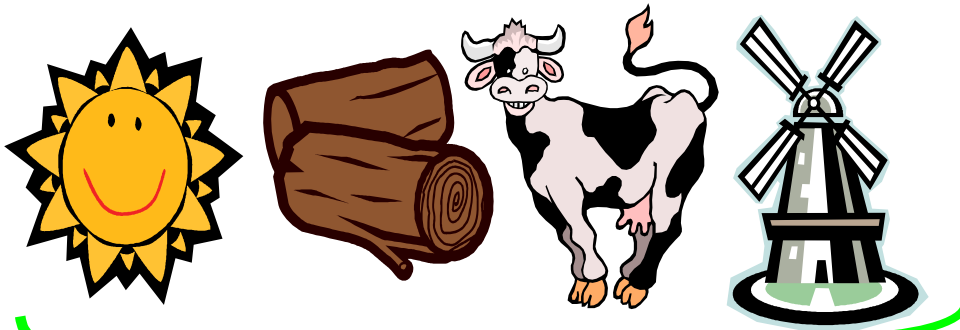


The main goal, in accordance with SRA:

To catalyse the transition to hydrogen by taking advantage of the existing natural gas system:

- * To connect hydrogen production and demand;*
- * To increase the acceptance of hydrogen by the end users;*
- * To support the preparation of stakeholders for hydrogen.*

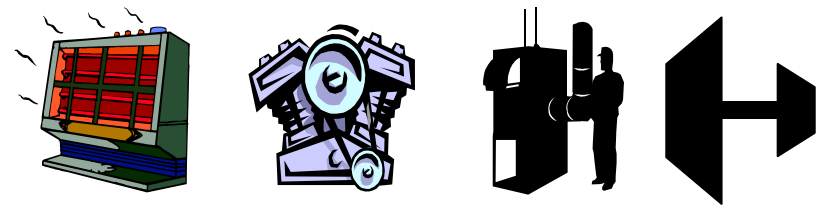
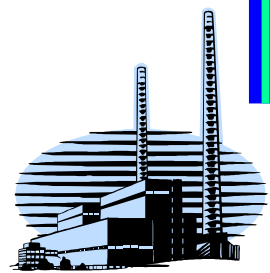
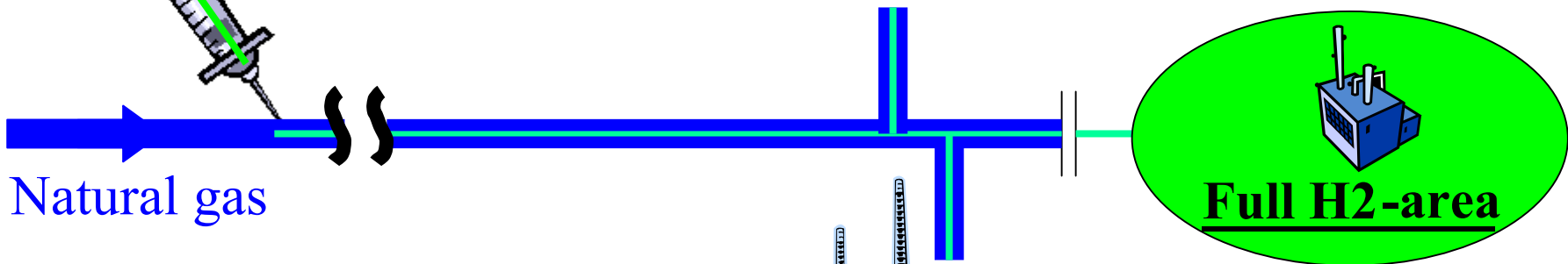
The NATURALHY approach



H₂



Natural gas





Characteristics

- 39 European partners, including 15 from the gas-business
- Integrated Project within FP6
- Project budget 17.3 M€, EC grant 11 M€
- Start 01-05-2004, duration 5 years



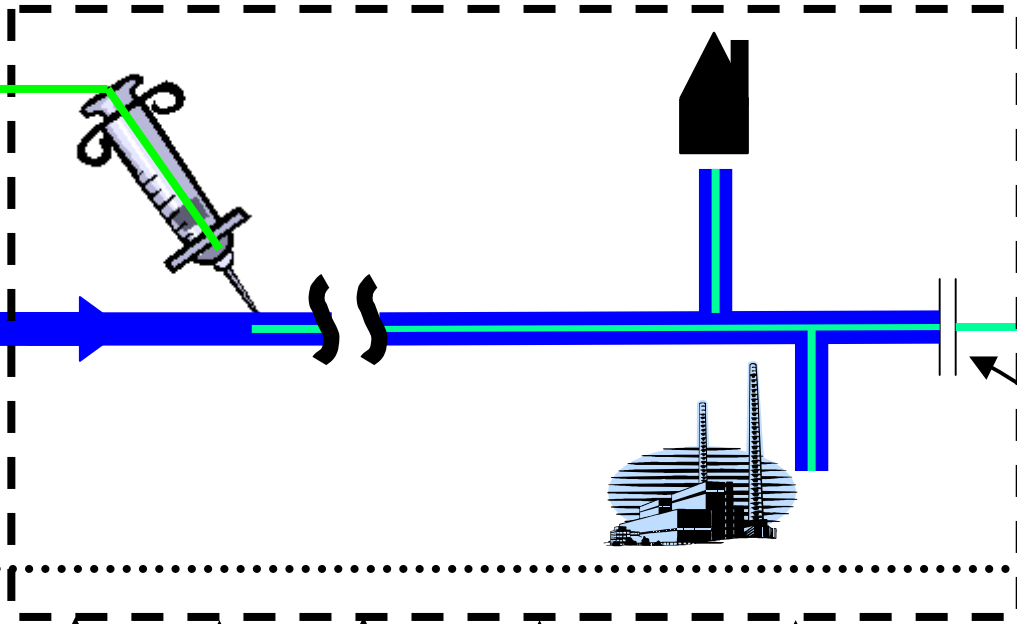
Socio-economic & LCA

Dissemination (in cooperation with HYSAFE)

Collaboration with HYWAYS (roadmap development)

H2-production

Natural gas production



Durability

Safety

Performance

H2-Membranes

Integrity

Standards and norms

Parties



Gas companies and gas research institutes financed by gas companies

GERG

Gasunie

Gaz de France

Statoil

DEPA

Naturgas Midt-Nord

IGDAS

TRANSCO

DBI

Shell Hydrogen

IFP

Total

BP

ISQ

DGC



Parties (continued)

Manufacturers and consultants

CSM CMI TOG GE/PII CETH SAVIKO Exergia SQS

Universities and Institutes

Technical University Berlin

National Technical University of Athens

Leeds University

Loughborough University

Högskolan i Borås

TUBITAK

University of Warwick

Ecole Nationale d'ingenieur de Metz

Norwegian University of Science and Technology

NEN COGEN ECN HSE TNO CEA PLANET



Main Deliverables, supporting Deployment:

- Assessment tool + safety data
- Membranes for H₂ separation
- Socio-Economic and LC Assessments
- Belief and enthusiasm of the stakeholders



Suggestions for the DS (1):

Be realistic:

- in developing a strategy concerning the transmission and distribution of **large volumes** of hydrogen by pipelines;
- in developing a policy for meeting the future total energy demand with sustainable energy carriers



Suggestions for the DS (2):

Don't write off the Gas Industry yet:

Natural gas has a big future

Without it, Europe hasn't!



THANK YOU FOR YOUR ATTENTION

ONNO FLORISSON

Gasunie Research

+31 50 521 2651

o.florisson@gasunie.nl