

Concilier le bon état écologique et la production d'énergie hydroélectrique – L'expérience européenne

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Rencontres de Grenoble
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ESHA



- Non-profit Organisation, founded 1989
- Headquarters in Renewable Energy House in Brussels
- Members in mostly all EU countries and worldwide
 - National SHP associations
 - SHP industry (manufacturers, etc.)
 - Scientific community
 - Individual members
- ESHA is founding member of EREC- the European Renewable Energy Council

ESHA activities: lobby



- Lobbying for SHP interests towards the European Institutions:
 - Policy position papers on SHP situation in Europe,
 - **WFD vs RES-e**, Proposals for a European R&D strategy for SHP
 - On RES-e Directive in cooperation with EREC
 - On RES priorities for FP7 in cooperation with EUREC Agency
- At National level through ESHA members





ESHA activities: projects

European funded Projects

- **SHERPA** – Small Hydro Energy Promotion Action
- **TNSHP**-Thematic Network on Small Hydropower
- **SPLASH**- Spatial Planning and Local Agreements for Small Hydro
- **SYNERGY** project with China
- **SHYCA**- Promotion of Small Hydro Power Retrofitting and Implementation in the Caucasus and Carpathian Region





SHERPA- Small Hydro Energy Efficient Campaign Action

WP 1 Project Co-ordination & management

- Co-ordination of work
- Project meetings
- Reporting etc.

WP 6: Dissemination

- Website, publications, workshops, conferences
- Outreach to European Key SHP actors
- Dialogue and networking

SHERPA

SHP POLICY

WP2: Status SHP policy framework and market development in EU-25
Report
Input to Policy Fora

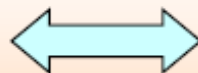
WP3: National Policy Fora
WFD vs. RES-e
Administrative Barriers
Spatial Planning
Support Schemes

WP6: Small Hydropower and Local Development
SHP productivity in terms of RES-e and WFD targets
Economic analysis
Implementation of territorial planning approaches



SHP IMAGE

WP5: Public image Campaign
SHP award
Technical report for SHP environmental integration
Social engineering
Environmental certification and SHP (ISO 14001)



**Market development of SHP
in Europe**

Contribution to reaching White Paper Targets



ESHA activities: promotion



- **Information dissemination on SHP issues**

- Newsletter
- Articles in international magazines
- SHP seminars
- Website www.eshab.be
- Publications on SHP



- **Hydroenergia Conferences**

- **Hydroenergia 2008:**
 - Bled, Slovenia 11-13 June 08
 - Call for Papers is open!



RES policy framework



RES White Paper (1997)

↳ To double the share of renewable energy from 6% to 12% of gross energy consumption in Europe (EU-15) by 2010

Green Paper on Security of Energy Supply (2000)

RES Electricity Directive (2001)

↳ To establish a framework to increase the share of renewables electricity from 14% to 22% of gross electricity consumption by 2010

Directive on liquid biofuels (2003)

↳ To achieve a share of 5.75 % of biofuels for transport in the total amount of fuels in Europe by 2010

Biomass Action Plan (2005)

Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy" (2006)

Renewable energy today



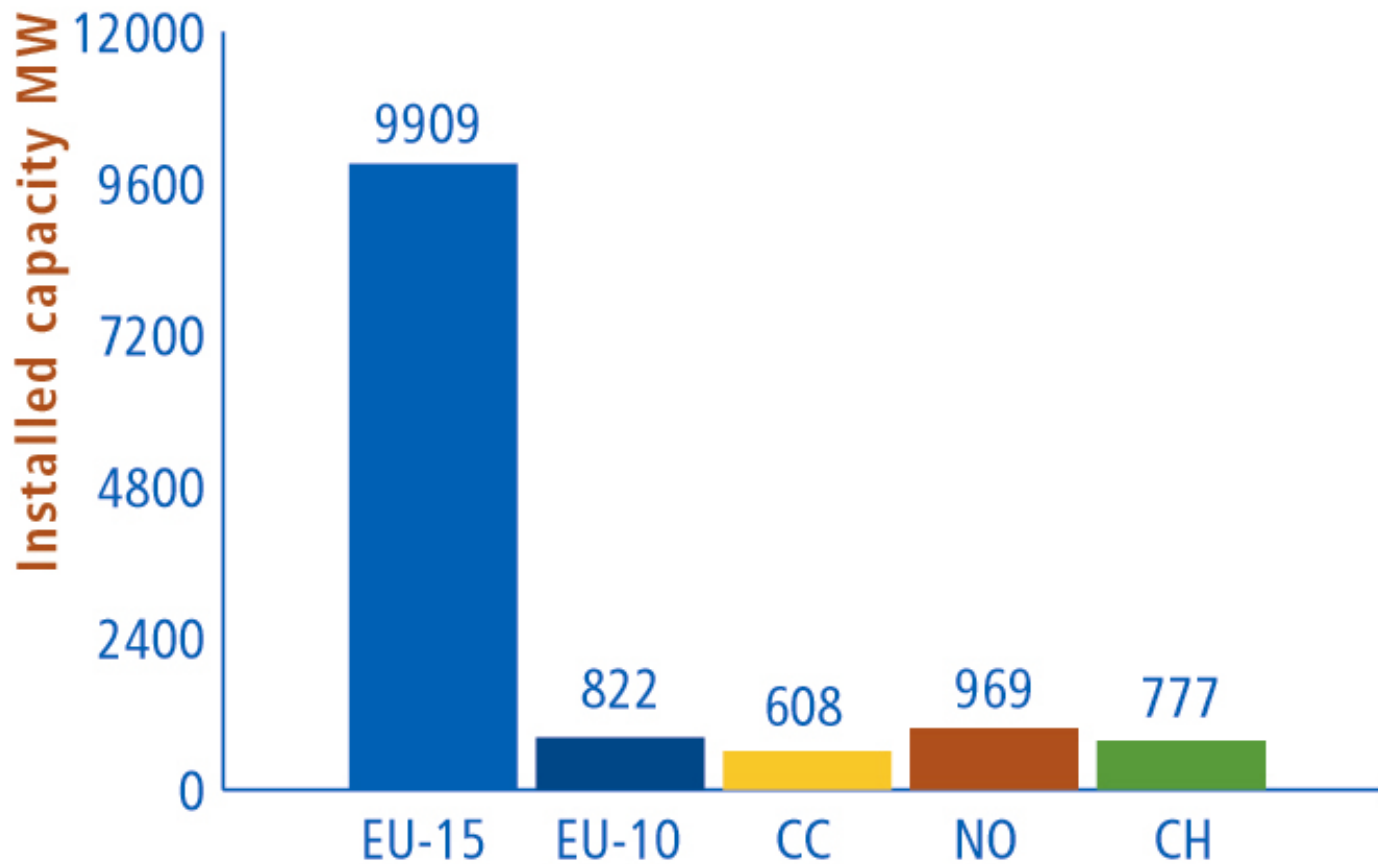
- About 15% of all EU electricity supply is generated by renewable energy sources
- About 10% of heat demand is supplied by renewable energy sources
- About 1% of transport fuel demand by renewable energy sources

Renewable energy targets 2010



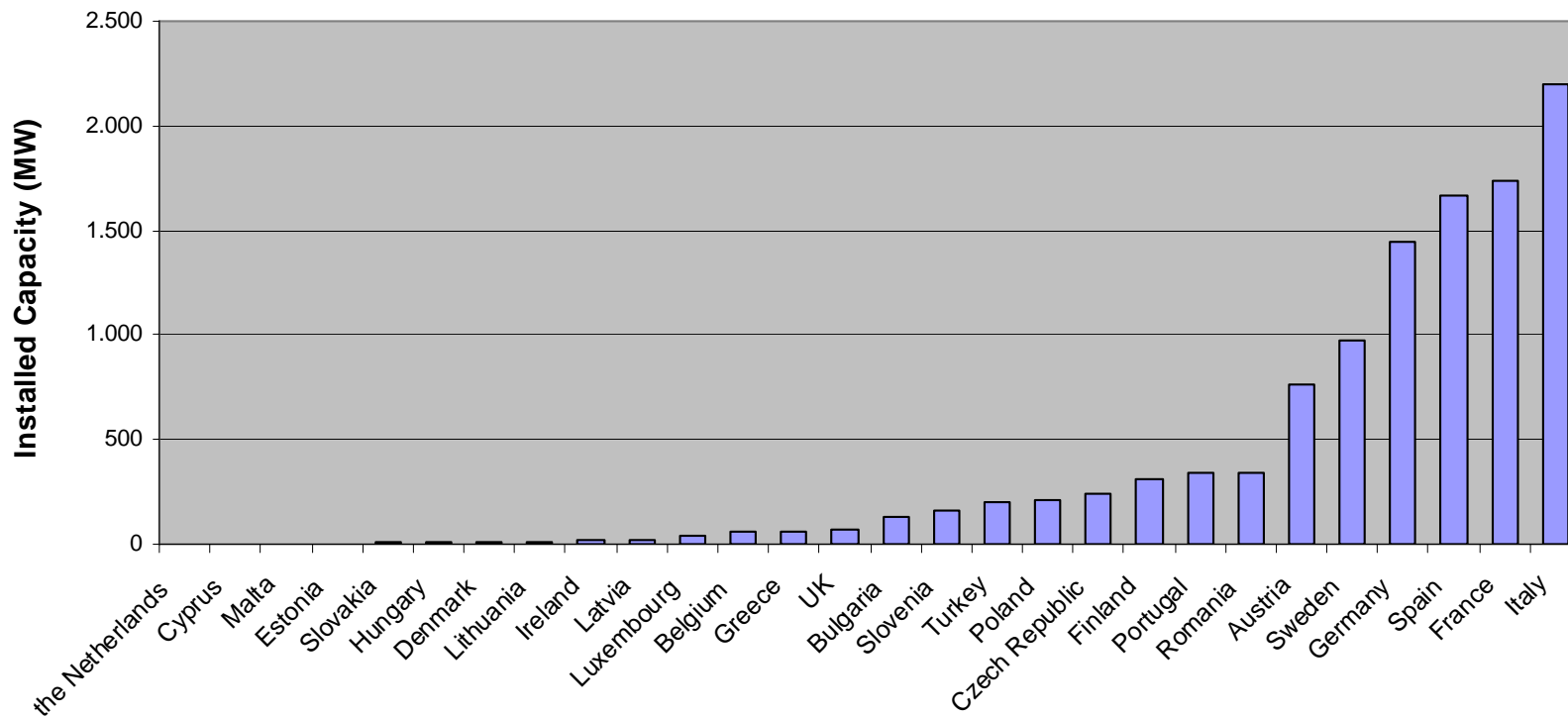
- 22 % of all EU electricity supply is generated by renewable energy sources
- 16 % of heat demand is supplied by renewable energy sources
- 5,75 % of transport fuel demand by renewable energy sources

Market development



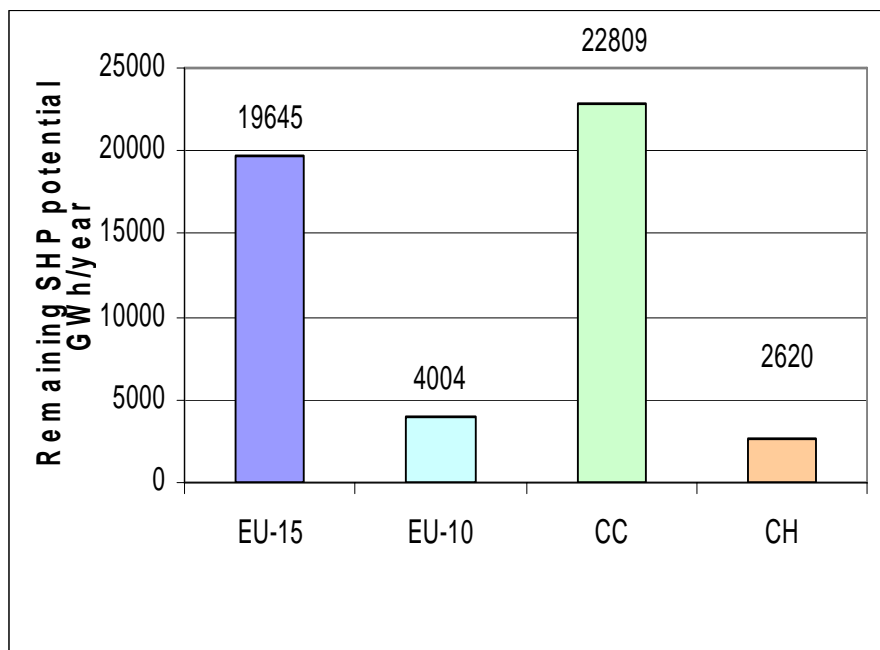


Market development



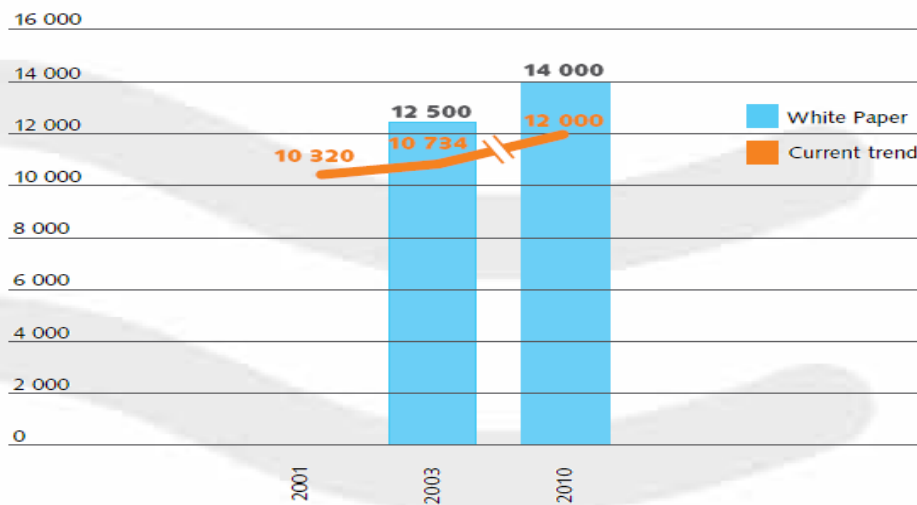


Market development- Potential

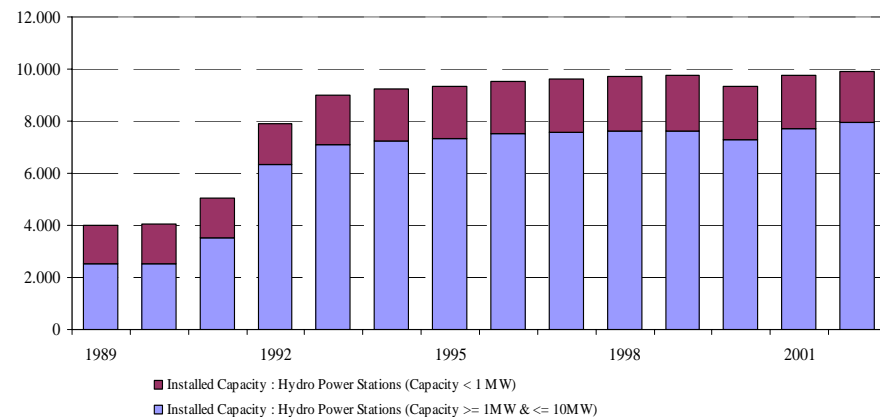


- The remaining economically feasible potential amounts to some 20 TWh/year in EU-15.
- 26 TWh/year in the New Members States and CC.
- The majority of this potential (roughly 80% or 19 300 GWh/year) is located in Turkey.
- Poland and Romania rank second, having indicated potential 6 to 10 times lower than that of Turkey

Market development-projections for the future



Srcce: EurObserv'ER 2004



Following the annual growth rates of 2%/year in the last 10 years, the European SHP installed capacity would be around 12 000 in 2010. This figure is clearly far short of the European Commission White Paper target of 14000 MW.



Market development - Barriers

- Since the RES-E Directive is in force a further development of SHP has taken place.
- However, the speed of the development was less than expected, mainly due to important administrative and environmental barriers, some of which are resulting from the implementation of the Water Framework Directive (WFD).
- In order to reach the targets set out in the RES-e Directive, there needs to be a reconciliation between the RES-e and the WFD.



WFD SCG

- ESHA is member of the Strategy Coordination Group (SCG) which was formed to accompany the implementation of the WFD.
- ESHA has been pushing for the creation of a group on hydromorphology & navigation which is active since 2006.
- This group has produced a policy paper as well as a technical paper both of which are available from ESHA.

Environmental aspects of small hydropower plants



Environmental solutions:

- Reserved flow (environmental flow, residual flow)
- Fish bypass systems
- Trash rack material management
- Multi purpose plants
- Design
- Noise and vibrations
- Fish friendly turbines



Fish bypass systems

- Theory of the spatial and temporal continuity of rivers
- impacts on river continuity by weirs, diversion concepts, measures of flood control and river regulation
- The individual solutions will necessarily fit into one of the following groups:
 - * **Fish ladder** (dividing up total head into low passable steps between small basins)
 - * **Fish bypass** systems (imitating the morphology as well as the hydraulics of a small stream)
 - * **Fish lift**

Fish bypass systems – examples





Multi purpose plants

The main idea:

Using still existing systems or
Combine different functions

Possible applications:

Drinking water supply systems

Irrigation channels

Recreation purposes

Flood protection

Creation of adjoining environmental areas

Waste water treatment plant



The question of costs

SHP operators are willing to set measures mitigating hydromorphological alteration

In reality that means additional costs

Additional investment cost

Additional operation cost

Reduced energy production

Any common strategy has to address the cost issue - methods on how to calculate and funding



Conclusions

- Still SHP potential in Europe
- SHP have tangible economic, ecological and social benefits.
- Policy framework crucial for SHP development
SHP market development depends on a coherent, predictable, supportive political & legal framework
- Reconciliation between need for RES-e and WFD Directive necessary and possible (see best practise examples).

More info on ESHA



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