



## **The Stream Map - the way forward for the Hydropower sector in the EU**

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### **1. Background**

With the increased global electricity demand, urgent need to ensure security of supply and to cut down greenhouse gas emissions, fight against climate change and environmental degradation from fossil fuel use, it is important to define a clear roadmap for the small hydropower<sup>1</sup> sector in the EU in order to remove barriers and enable the best contribution for reaching the targets set by the EU Energy and Climate Package for 2020. Therefore, the action within the Stream Map project aims at presenting the current situation of the SHP sector in EU-27 together with forecasting potentials to be able to analyse the future of the sector. Awareness raising and recommendations at local, national and European levels based on the *Stream Map* results will be carried out to influence the National Renewable Energy Action Plans which will be submitted by member states in accordance with the implementation of the RES Directive by the end of June 2010 and reviewed every two years thereafter.

### **2. Project set-up**

Stream Map is a project co-ordinated by ESHA and co-financed by the IEE Programme of the European Commission under the responsibility of the EACI. It will run for three years from June 2009 until June 2012. The Stream Map is carried out by a consortium of eleven partners. The partners have been carefully chosen to facilitate data collection from all EU-27 Member States. An Advisory Board, consisting of Eurelectric, European Renewable Energy Council (EREC), Hydro Equipment Association-Europe (HEA-E) and Eur'Observer follows the progress of the work performed. The results will be also compared and discussed with Eurostat.

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<sup>1</sup> Small Hydropower refers to hydropower plants with an installed capacity up to 10 MW.

Stream Map consortium partners:

- European Small Hydropower Association (ESHA)
- Belgian Renewable Energy Federation (EDORA)
- British Hydro power Association (BHA)
- France Hydroélectricité (FHE)
- Institute for Hydro and Design, Romania (ISHD)
- Italian Association of Renewable Energy (APER)
- Lithuanian Hydropower Association (LHA)
- Polish Hydropower Association (PHA)
- Portuguese Renewable Energy Association (APREN)
- Slovenian Small Hydropower Association (SSHA)
- Swedish Renewable Energy Association (SERO)

The following Work Packages cover the activities carried out by the project:

- WP1 Management
- WP2 Set-up and update of the HYDI database
- WP3 Hydro Energy Data
- WP4 Hydro Market Data
- WP5 Hydro Policy Data
- WP6 SHP Stream Map
- WP7 Communication and Dissemination
- WP8 Common dissemination activities

### **3. The raison d'être of the project**

There is a general feeling that everything as far as Hydropower is concerned has already been done: The technology is mature, the sector is well represented in the European Union and hydropower has a big share of RES electricity production in the EU. In summary, it looks like the sector does not really need any support for its further development and that it is performing on a good track. However, the reality is different. Hydropower developers and producers are facing many barriers and thus growth rates of SHP during the past years both in terms of production and capacity have been rather disappointing. The main barriers that the sector is facing mainly focus on growing environmental requirements and long and complicated administrative requirements, in particular with concessions. Indeed, environmental issues in general and the implementation of the Water Framework Directive are endangering the future development and realization of the potential hydro in the EU. This development threatens the European leadership of the sector and discourages stakeholders from investing in new projects.

The EU has nevertheless set the legally binding target for increasing renewable energy use by 20% by 2020 with the adoption of the RES Directive in December 2008. All Member States are to decide on their national energy mix by the end of June 2010 when submitting their National Renewable Energy Action Plans. Hydropower as the most cost-efficient and reliable renewable source of energy has a crucial role to play here.

The Stream Map project is based on the fact that there is not enough data and input available to draw a realistic road map for the small hydropower sector. Without a clear road map for the sector it is difficult to analyse, evaluate, forecast and conclude on how the small hydropower is going to contribute to the achievement of the 20% renewable energy target by 2020 and what it is more important how it is going to be integrated within the RES mix in the national action plans. Therefore, a road map for the small hydropower sector will be developed as a tool for policy makers at national, regional, local as well as EU level and for the small hydro and RES community in general (developers, producers, utilities, manufactures, researchers, etc).

In order to define a road map it is necessary to present the current status of the sector in a clear, concise and accurate way covering different dimensions as far as data and regulations are concerned. At the ESHA secretariat we got often rather frustrated when this data was not available – we received a large amount of requests but could never give comprehensive fully satisfying answers as the figures varied hugely according to different sources, they were not up-to-date or there was no information available even at national level.

In the case of small hydropower, the data collection is particularly difficult due to its local and disperse orientation. . Therefore, the first step is to create a centralised HYDI database including relevant statistics on the sector which will enable the drawing of a realistic road map. This exercise will not only ease the work of the EU in the evaluation of the different technologies and their contribution in reaching the 20% targets but also in the accomplishment of the legislation on Energy Statistics<sup>2</sup>. With this proposal, HYDI will offer a great added value for Eurostat and the Commission in general as a reference point. The data collected by Eurostat remains as the official source of information, which actually covers production and capacity variables for hydro and small hydro with a delay of publication of two years from the year's collection.

Nevertheless, statistical information is not enough to show the reality of the sector, neither it is sufficient to draw conclusions or forecast for the future. Therefore, the project will also cover policy data examining the current and ongoing legislation at national and European level affecting hydro and their impact in the further development of the sector. In particular, the impact of the Water Framework Directive and some other environmental EU legislation in force such as Natura2000, Flood Directive and Regulation on Eels or then again the impact of support schemes in the promotion of the sector.

Therefore, the Stream Map project aims at collecting of SHP information in a centralised and comprehensive way bringing together for the first time most relevant hydro data regarding energy, market and policy issues in EU-27.

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<sup>2</sup> COM(2006)850 final: Proposal for a Regulation of the European Parliament and of the Council on Energy Statistics. “In recent years a general decline of the statistical quality is being noticed. It is considered appropriate that initiatives be taken to underline the essential needs of reliable energy data.....The EU policies on Intelligent Energy and on renewable energy require detailed quantitative monitoring to measure progress towards targets”.

#### **4. Hydro Data Initiative (HYDI )**

The setting up of a complete, comprehensive and user friendly central database covering energy, market and policy data will function as a main tool for drafting the Stream Map for the sector.

The HYDI (Hydro Data Initiative) database will cover variables such as installed capacity, energy production, number of plants, fees, prices, support schemes, capital and operation and maintenance costs, employment figures, timeframes and rates of project approvals in the context of the concessions and the authorisation process in each EU member state. Potentials and forecasts will be also covered as well as the impact of the implementation of the Water Framework Directive and other nature regulations will be analysed.

The data collection will be done in a concentrated and concise way by the project partners. The data contained will be annual starting from 2007 and will offer some provisions for 2010 and 2020. Data exchange and cross-checking quality with Eurostat, Eurelectric and Observ'er will guarantee the quality of the information.

The HYDI can be accessed via internet ([www.streammap.esha.be](http://www.streammap.esha.be)) for data extraction at any time and free of charge and the data will be available on an annual CD Rom and several statistical/press releases will be published on a yearly basis.

In a nutshell the action will group the sectors' currents status, needs, barriers, challenges and prospects for the future in a common, centralised database offering a valuable reference for various stakeholders, investors and the European Institutions of the status of small hydropower.

#### **5. A Roadmap for the Small Hydropower Sector**

Developing a Stream Map for SHP will enable to define strategies for the future development of the sector. These strategies will be the result of analyzing the current status of SHP and comparing the current trends with the expected or forecast picture for the medium-long term. The assessment of potential and future perspectives will be done through the data contained in HYDI on forecast production and capacity by contrasting with the expected results and impacts of current legislation affecting the hydropower sector (for example comparing the technically feasible potential which due to the implementation of the Water Framework Directive will not materialize in some countries).

The Stream Map will be an strategic document including several sections where (a) the current status of the SHP sector is described in detail including market and policy information, (b) the expected development of the sector is drawn based on the information collected and analysed on potential production and installed capacity, employment and market deployment and (c) some recommendations are suggested to the policy makers and main stakeholders on how to continue supporting the sector and on measures that should be taken in order to boost it deployment as well with a view to its relevance for the national energy plans will be covered.

Then the performance of the sector can be analysed against the implementation of the new RES-Directive and the achievement of the 20% target for 2020 by underlying constrains derived from the application of other regulations like the Water Framework Directive and the barriers. Therefore, the outputs of the proposed action will add a significant value even beyond the projects life. Therefore, the proposed action has as strategic objectives:

- To help the EU monitoring if the EU Energy Policy, in particular the RES-Directive, is on track and serve as an indication of early warning signals of bottlenecks of the sector, which would undercut the success of these policies.
- To provide a benchmarking exercise which similar to the Internal Market Score Board would show the progress of different Member States in the development of the sector and signaling the barriers and good practice examples.
- To serve as the input for ongoing and future EU and national projects dealing with RES in general and hydropower in particular.

The major output of the proposed project is the definition, drafting and publication of a Stream Map for SHP. The first encompassing Stream Map publication will be ready in autumn 2010. During the years 2010-2011 a validation process will take place both at theory and practice on the contents at national and local level. This validation process will include not only the engagement of the scientific community but also the organisation of different workshops at national level where the key actors of the project will be involved. Based on the results of the validation process, the final Stream Map will be published in 2012 and the results will be widely distributed and specially concentrated on the target group identified in this proposal, which are political decision makers on national, regional and local levels.

More detailed information & HYDI database are available at [www.streammap.esha.be](http://www.streammap.esha.be).

