



**ZVEZA DRUŠTEV**  
LASTNIKOV IN GRADITELJEV MALIH HIDROELEKTRARN  
SLOVENIJE

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**VOJKOVA 63, 1000 LJUBLJANA**

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**SHERPA**  
**Small Hydropower Energy Efficient Promotion Action**

**Report of SHERPA policy meeting**  
**(HIDROENERGIA 2008)**

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**SLOVENIAN SMALL HYDROPOWER ASSOCIATION**

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## **Conference frame**

Hidroenergia 2008 was held for the first time in one of the new Member States of the EU, Slovenia, which was chairing the European Council Presidency in the first half of 2008. Co-organized by the European Small Hydropower Association (ESHA) and the Slovenian Small Hydropower Association (SSHA), the conference gathered about 250 leading experts from the small hydropower sector covering 36 countries in the beautiful town of Bled. This year's program focused on two crucial issues: The role of small hydropower within the EU Energy and Climate Package and Sustainability. The conference included more than 50 presentations from distinguished speakers representing views from industry, research institutes, the European Commission, NGOs and governments in 12 sessions with the key focus on:

- Policy framework
- New opportunities and image
- Environmental and technical solutions and
- Planning, engineering and innovations

In parallel, a two-day exhibition, with 21 exhibitors and sponsors, was organised. This included presentation of machinery and electrical equipment for small hydropower schemes, including construction materials and engineering solutions.

Janez Potočnik, EU Commissioner for Science & Research, opened Hidroenergia 2008 (video message) by acknowledging the importance of hydropower as the backbone of renewable energy in many EU Member States and the inherent research need to ensure further technological development.

## **SHERPA Policy Session**

One of the specific objectives of SHEPRA was to strengthen market development of SHP in New Member States.

In order to facilitate this process, the project proposed to promote policy dialogue and information dissemination on SHP that will assist in fostering the market penetration of SHP. Currently, many of these countries are at the point of creating programs for renewable energy sources. In this stage, it is therefore especially crucial to assist them in establishing the appropriate structures that will allow them to implement European energy directives.

Policy forums on SHP was combined with a major SHP Conference in Slovenia focused on SHP in New Member States and addresses all the political, engineering and environmental key issues of SHP sector. One of the main barriers against the uptake of SHP is the lack of information among decision makers. By preparing high-profile information material and by organizing a policy session on the topic of SHP within a SHP international conference, this lack of information was overcome.

SHERPA Policy session took place on the first day of HIDROENERGIA 2008 Conference in Bled, Slovenia.

Approximately 70 participants took part at Session 2B - SHERPA Campaign: Improving SHP Image. The session was chaired by Gema San Bruno, project manager at ESHA.



Chairman: Gema San Bruno, ESHA (*first from the right*)

The paper presented by the group of international speakers included the following topics:

1. Small Hydro Power Stations in Slovenia -Licensing, Environmental & Economic Issues
2. The European Master in Renewable Energy
3. Small Hydro - a significant contributor to Local Grid Safety
4. Environmental Management System for Small Hydropower Plants - an Innovative Approach
5. The Italian Targets for 2020 and the new Incentivation System

**Jurij Čadež** of Elektro Gorenjska (Slovenia) presented main obstacles for installation of new SHPP. **Katherina Krell** of the EUREC Agency outlined opportunities for small hydro in Europe. The contribution from **Janusz Steller** of the Szewalski, Institute of Fluid Flow Machinery (Poland), highlighted the significant role small hydro plays in local grid safety. **Anne Penalba** of France Hydro-Electricité gave details of the ISO 14001 Environmental Management System for Small Hydropower. **Sara Gollessi** of APER, Italy, gave details of Italian targets for renewable energy development by 2020, and various new incentive schemes which had been introduced to help achieve this.

The summaries of presented papers are presented in continuation of the report.

## Small Hydro Power Stations in Slovenia -Licensing, Environmental & Economic Issues

Author: Jurij Čadež, Gorenjske Elektrarne



Small Hydro Power Plants (SHPP) are the only alternative power source which presents a visible role in Slovenian power generation portfolio. Slovenia has a lot of possibilities for the installation of new SHPP and for the upgrading of existing installations, but very little is under construction. Main reasons are: poor economical feasibility, unsolved landowning issues, and unreasonably strict environmental protection that block the licensing.

All Slovenia's public and politics are full of positive comments on the subject of RES and efficient energy use. All politicians are generally supporting development of RES in Slovenia. The European Union demands RES to increase to 20% in Slovenia; therefore also the EU supports the development of RES. In spite of the general approval and support to RES, players on the area of SHPP realize that national measures and the inclinations of state institutions are hostile towards RES development, at least on the SHPP area. As a proof we can state the previous unannounced decrease of premium (subvention) for energy produced in SHPP, state plans for cancellation of premium and increase of water duty that SHPP in Slovenia must pay. In 2006 there have been 34 denied initiations for issuing the water concession, only 3 have been granted. State's actions point to the fact that it wishes to stop SHPP development and not speed it up, which would be expected according to the general approval and support to RES. State administration's actions are therefore quite the opposite of the words of politicians.

## The European Master in Renewable Energy

Author: Katharina Krell, Greenovate



EUREC Agency is the initiator and coordinating agency of the graduate programme "European Master in Renewable Energy". The European Master in Renewable Energy is directed towards engineers that want to specialize in one of the renewable energy technologies, such as wind energy, biomass energy, photovoltaic, solar building technology or hybrid systems.

The renewable energy industry, because it is labour-intensive, creates employment at much higher rates than many other energy technologies. According to estimations of the European Renewable Energy Council, by 2010 Small hydro and geothermal power are expected to provide for 15.000 and 6.000 jobs, while PV and solar thermal will employ another 30.000 and 70.000 people.

A network of 7 European universities and research centers leading in renewable energy RD&D runs the course. Recent plans aim at adding a water specialization to it. A specialisation in water power (to include micro-hydro, wave and tidal power) would be especially welcome and relevant as hydropower is the renewable energy technology with the highest efficiency ratio and in most countries still the largest contributor to renewable energy electricity supply.

The course is of great interest to companies as it delivers qualified engineers equipped with the latest skills and the right experience for a successful career in their industry.

## **Small Hydro - a significant contributor to Local Grid Safety**

Author: Janusz Steller, Szewalski Institute of Fluid-Flow Machinery



The technical condition of the national power grid in Poland is highly differentiated. It is generally acknowledged that the technical state and transmission capabilities at the grid peripheries and the remote rural areas are quite often insufficient. Recent experiences have proved again that irrespective of high transmission losses, these areas are also most severely affected in case of any major grid failure. An automatic separation from the grid and isle operation basing on local sources is often considered the most reasonable safety precaution. This raises an obvious interest in utilization of dispersed RES power sources for this purpose. During recent National Policy Forum events held in Poland within the ESHA co-ordinated SHERPA project it was indicated several times that the remotely controlled SHPs equipped with synchronous generators could play a key role in such a safety system. Additional arguments for such an approach are based on the current plans to erect in Poland a number of highly needed water retention ponds.

Large reservoir hydropower plants and hydropower plant cascades in swell operation are unchallenged components of black-out prevention and black-start strategies at national and regional levels. Their capabilities in this respect should be utilized whenever possible.

There exists a possibility to develop a complimentary strategy at local level, based on an idea of local grid separation and using local sources for its support in case of an emergency. SHPs furnished with synchronous generators and situated at large water retention reservoirs could play a key role in such a local energy security scheme.

The so-called “bottom-up” strategy may be attractive in case of high risk of a major grid failure. SHPs with synchronous generators may also exert highly positive effect on the local grid parameters under normal conditions of operation.

The local energy security concept is burdened with the need of implementing a number of technical and administrative steps. Assessment of their justification and feasibility requires detailed studies and discussion in case of each local area under consideration.

## **ISO 14001 Environmental Management System for Small Hydropower Plants - An Innovative Approach**

Author: Anne Pénalba, France-Hydro-Electricité



European standard ISO 14001 is constructed in a way that requires constant improvement of the production process.

The process includes six stages: (1) Initial environmental review, (2) Environmental policy, (3) Planning, (4) Implementation and Operation, (5) Checking and Correcting action and (6) Management review.

Certification process in practice is also divided in four steps: (1) Analysis of the environment, (2) List of the regulatory requirements and Checking of conformity with the environmental laws, (3) Defining the environmental policy and building the environmental management system and finally (4) Test audit. The output of this process is Certification audit.

The time needed to obtain the certificate is 18 to 24 months and some assistance is welcome on the way. It is advisable to use a guide and to get possible subsidies, as well as the regulatory watch of the association (France Hydro-Electricite). One should also keep in mind to involve proper human resources, as well as financial ones.

The results of the implementation of the Environmental Management System for SHP are:

- Biannual regulatory watch, a guarantee for a better respect of the environmental laws
- Starting up of an annual environmental program
- Optimization of production
- Better waste management
- Control of inputs (oil & grease)
- Strict controls
- Regularity of maintenance
- Safety procedures
- Training of the personnel
- Improvement of external communication
- Better integration of external requests
- Consciousness-raising of suppliers to the environmental management

In France, the start of the approach was made in 2001 and in 2002 already first three small hydropower plants were certified. Five years later, in 2007, thirty SHP were already certified or in the way to certification.

### **Conclusions**

ISO 14001 is a good frame to improve environmental performances of the power plant, but only if the management system is simple and appropriate with the size and impacts of the SHP. Every company could implement its own system, progress according to its own deadlines and improve the environmental insertion of its own plant. Protection of river ecosystems is as important as production of RES electricity. Both should be done in harmony.

## The Italian Targets for 2020 and the new Incentivation System

Author: Sara Gollessi, APER



On January 23rd the proposal for the new European Directive on the promotion of the use of energy from renewable sources was issued and in the same days the Italian Government approved new important provisions for the incentivization of renewables energies. We want to analyze the effects of this new policy framework for the hydropower sector in Italy.

The proposal of Directive on the promotion of the use of energy from renewable sources presented in January contains also a first quantification of the sharing of the EU target among the Member states. Institutions and stakeholders are at the moment discussing about the technical feasibility and the social costs and opportunities of this proposal. A lot of researchers are analyzing economical and environmental consequences and more information will be available in the next months. Even if the text of the new Directive is still under discussion and negotiation, it seems that Member states will be free to define their own energy policy mix. It is difficult to understand which will be the role of hydropower and its contribution to the Italian national target for 2020, since these years hydropower is experimenting a strong opposition from local communities and environmentalists. In our opinion, Italian national and regional authorities should intensify their efforts towards the 2020 targets and start to look at them as an opportunity rather than a burden.

Each Region should undertake its own targets and define clear and efficient roadmaps to 2020: this means that energy plans should set, on the basis of the potential of each territory, a minimum increase in renewable energy production for each renewable source. In addition to this, administrative barriers need to be removed, by streamlining procedures, simplifying support schemes, reducing requirements. While taking into account the different levels of territorial governance, one-stop shops should be introduced. The new inactivation system, introduced with the financial law 2008, presents of course positive elements for small power plants, but the transition from the old incentivization system to the new one has generated a lot of confusion, with negative consequences for small producers who are not so confident with the market rules. We want to underline that the stability of the framework of incentives is a crucial point to give to industry a clear and long-time perspective, which in turn stimulates investments and promotes technological innovation.

## Conclusions

The closing of the conference was organized as a round table with open discussions with the participants. That way the possibility to exchange ideas and perceptions was made for both the policy workshop organizers, speakers and participants.

Christine Lins presented the conclusions, which can be summarized as follows:

- Reconcile energy and environmental targets.
- Hydropower electricity importance is complementing the production of other RES technologies in the renewable energy mix to overcome intermittency of these technologies.
- SHP development could and should be accelerated by building on the new drive to promote the benefits of hydropower for security of supply, stabilizing energy prices and contributing to climate change mitigation.
- There are clearly exciting opportunities for future development in both Europe and developing countries.
- There is still a need for more technological research to increase power outputs and to exploit untapped potential.
- There is an increasing need for training to produce more skilled workforces.
- Great potential for rehabilitation of SHP sites without significant authorisation problems but substantial increase in power output.