



**Ex-Post Evaluation - INTERREG III 2000-2006**

**PROGRAMME: INTERREG III A KARELIA**

**Karelian Villages – Intelligent Energy Services**

**Project Good Practice Study**

## **Project study: Karelian Villages – Intelligent Energy Services**

### **1. General information**

**Keywords:** Karelian INTERREG, virtual village, energy services, heating systems, public-private partnerships

**Regions:** Karelian Republic in Russia and the Region of Oulu and Kainuu on the Finnish side of the border

**Strand:** INTERREG Strand A

**Programme :** INTERREG III A Karelia (Finland Russia)

**Duration:** May 2006-December 2007

**Funding:** The total approved funding was €701,283, with state funding representing approximately 34%, ERDF similarly 34% and the rest local authority funding and private co-financing. The TACIS share of funding amounted to €216,041, which included €24,000 provided as co-financing by local/regional authorities from the Russian Karelian side.

### **Partners**

**Lead/Research partner:** VTT Technical Research Centre of Finland (6 researchers)

**Business partners:** *Planora Ltd* (12 members of staff), Oulu Centre of Expertise / *Oulu Innovation Ltd*

**Public authorities from the Russian side:** The National Committee for the renewal of housing and municipal economy, Republic of Karelia and the local villages (Kostamus, Pudos, Prääsä, Muejärvi); Regional Economic Commission of the Karelian Republic

**Public authorities from the Finnish side:** municipalities of Suomussalmi and Kuhmo in the Finnish region of Kainuu, City of Oulu

### **2. Project Aim**

The project "Karelian Villages - Intelligent Energy Services" aimed to create a "virtual village" concept that could be used to design and develop an entire heating supply chain for a local community. The concept would make it possible to assess energy supplies and produce more effective ways of selecting from alternative investments and going ahead with the most technologically feasible ones. Another goal was to train experts within the heating energy industry while establishing a network for continuing the effective implementation of energy services. In so doing it was hoped to increase co-operation through networking and identify future potential joint projects.

### **3. Project Description**

The objective of the project was to create a model that could provide a sufficient level of heating for the targeted community. The main issues investigated included the methods of heat production (fossil and bio fuels), heat distribution (networks and systems) and heat utilisation (e.g. maximising the effectiveness of using energy during the building's life-cycle). The partners informed the participants how to make

selective investments and then maintain and repair of the system. The concept included support material and tools to develop the heating energy system and its continued management by the communities themselves.

The model was to be created in a simplified format on the Internet, where Russian residents and future cooperation partners could review the energy management solutions for their respective areas. The project also intended to provide information such as Finnish guides/instructions, procedures and tools, which could also be used in Russian projects by Finnish speakers. The villages of Olonets, Kostomuksha, Pudos and Prääsä were selected as the Russian pilot villages, while in Finland their partner municipalities included Kuhmo, Suomussalmi and Oulu.

#### **4. Political and Strategic Context**

Promoting a more efficient use of energy resources and developing innovative solutions for planning are central to the EU's sustainable development and clean energy policies. A Green Paper was adopted in 2006, itself an important milestone in developing an energy policy for the European Union (EU).

*Per capita* energy consumption in Finland is amongst the highest of the OECD countries. Given its climatic conditions and traditions of energy-intensive industry such as paper and pulp factories – which in the past have provided a base for the development of CHP in district heating – Finland has a strong interest in developing more affordable, efficient and effective heating systems.

Managing residential heating systems is in most cases a municipal affair in Finland. Local authorities are interested in gaining expertise in new areas in order to plan using sustainable energy sources and systems. Particular importance is placed on achieving a more efficient use and secure supply of energy.

#### **5. Project Implementation**

The project consisted of three main work packages, in addition to coordination and project management. These were information gathering and analysis, drafting of the virtual village concept and piloting the concept.

*Information gathering and analysis* - As originally planned, the project collected information on the current state of affairs of heating systems in North-Western Russia (the form of the system, quality, functioning, needs for repair and opportunities for further development). The partners also created analytical community energy 'roadmaps' for the Russian pilot villages of Pudozh, Olonets, Pryazha and Kontoki, plus the city region of Kostomuksha.

Six written reports were produced:

1. Intelligent energy services in Karelian villages: background information, 79 pages (in Finnish)
2. Background information in the target area, 84 pages (in English)
3. District heating systems and connected building stock (74 pages, in English)
4. Energy and buildings in the Republic of Karelia, 17 pages (English)
5. Identifying markets and business potential: Actors in the heating sector in the Republic of Karelia
6. Identifying markets and business potential: Actors in the heating sector in St. Petersburg

*Drafting the virtual village concept* - On the basis of the information gathered during the previous stage, a concept was developed to plan and steer the development of local heating systems in the area. The model made it possible to assess the local energy supply and produce more effective solutions for selecting and implementing technologically feasible investments. The network created an internet portal, initially as part of the project (<http://www.planora.fi/sivu/en/energiahuolto/>), which was presented at several events: Petroskoi (8 November 2007), Aunus (17<sup>th</sup> December 2007), Kostamus (20<sup>th</sup> December 2007), final seminar at Petroskoi (18<sup>th</sup> December 2007). The web content was produced in Finnish.

*Piloting the concept* - Firstly, two training sessions were organised in Finland for the Russian project group, focusing on heat distribution network design, the utilization of the virtual concept, making assessments of heat distribution networks and real estate, introducing the Finnish practice of 'dimensioning', and providing insights into methods and equipment. In addition, two study tours to Finland were organised, where participants learnt about standard but also technologically-advanced, innovative Finnish solutions and state-of-the-art equipment. This was crucial in strengthening cooperation and establishing new networks. Secondly, in order to then put the model and lessons learnt into practice, two training courses were organized in Russia. The purpose of training was to transfer basic knowledge about community heating energy systems to local partners on the spot in the pilot villages and enable interactive learning by the village experts and trainers, meeting the project partners face to face, to really learn about heating in Finnish villages and be able to compare it with the situation in Russia.

The organisational model comprised a broad-based yet small steering group to support project implementation. Consisting of eight members, it was chaired by *Planora*, a company working with energy consultancy. At the beginning of the project a kick-off meeting ensured that all the parties established direct contact and got to discuss the project objectives, activities and working methods in detail, and face-to-face. The meeting also clarified a number of administrative and project-management related issues, rules and regulations (eligibility of costs, monitoring, audit etc). This working arrangement was seen as a key to project success. Knowledge transfer was developed in a systematic manner from the start.

Researchers from the VTT Technical Research Centre of Finland and Planora Ltd were engaged in implementing the INTERREG project. The Russian administration (the Regional Energy Committee of the Republic of Karelia and the State Committee responsible for reforming housing and communal services) was responsible for the TACIS part of the project. In the St. Petersburg area the partner was the Petersburg Power Engineering Institute of Professional Development (PPEIPD). Reports and interviews with participants attest to the commitment and active participation of these partners as a key to the projects success.

Together the partners sought and obtained relevant technical information regarding the Russian target area in order to proceed with pilot activities. They also conducted training activities and engaged in other project activities that resulted as a spill-over from the project. In the TACIS part of the project, the 'Virtual Village' concept was implemented in Russia. The Republic of Karelia applied the Finnish instructions and regulatory information produced and collected by the partnership. It underwent training on heating concepts and methods. In the INTERREG part, Finnish partners used the existing Finnish/Russian InfraNet network managed by the Finnish business partner (*Planora Ltd*). The Oulu Region Centre of Expertise (Oulu Innovation)

provided additional support for the project, importantly, also bringing to the fore its intrinsic knowledge about the triple helix model.

## **6. Project Results**

The project created a 'Virtual Village' which provided the required support material and tools to develop an energy supply to heat communities on the Russian side of the border. The potential for energy conservation within the target area was assessed through pilot studies at various stages of the concept's lifecycle. The project successfully analysed the potential to develop and apply environmental technology and environmentally-friendly products in the cross-border region.

Six new jobs were created (5 male, 1 female), one job was maintained and 47 people were trained during and by the project. 2 studies were produced to support the operational preconditions for business development, further than the reports issued during the analysis phase: Intelligent energy services in the Karelian villages: background information (Finnish), Background information in the target area (English), District heating systems and connected building stock (English), Energy and buildings in the republic of Karelia, (English), Identifying potential markets and business potential: Actors in heating area in the Republic of Karelia, Actors in heating area in Saint Petersburg.

The main benefit for the cross-border region is the reduction in the environmental footprint, not only via the use of more environmentally-friendly technology, but thanks to studies supporting clean business development and the operation of services. The many benefits for participants included: individual and organisational learning; the improvement of cross-border understanding through dynamic mutual exchange; trust and confidence built up in the cooperation process and recognition of the fact that the experts involved on both sides of the border were serious, skilful and committed; changes in attitudes among younger generations of Karelian experts; the reduced risk inherent to collaborative ventures through cooperation that built foundations for future cross-border commercial ventures; greater cooperation between local authorities and businesses; and knowledge transfer between researchers and public sector authorities, thereby also contributing to evidence-based policy-making at local level.

INTERREG funding was a vital catalyst for the project, with many stakeholders previously recognising, 'the only thing missing is money'. The broad and multifaceted expertise represented in the implementing network was felt by many of individuals interviewed to be unique. There may be possible leverage effects in terms of future cooperation. Although a direct follow-up to the project did not take place, the various stakeholders are pursuing various cooperation initiatives, with some also active in the ENPI-programme, which replaced INTERREG IIIA in the cross-border region. The aim of establishing an educational programme for the Russian partners on heating systems is still under preparation by several partners and stakeholders.

Market research on the heating systems in the cross-border region was undertaken and the project internet portal supported this activity. Firms have sought to develop and maintain closer commercial ties across the border. Such endeavours have been affected, however, by the economic downturn. The business potential is, nonetheless, there and tapping it remains an attractive opportunity for when conditions pick up. Rough calculations made by the project showed that the market

value for renovating district heating systems in the Republic of Karelia amounts to over 400 million euros.

## **7. Key Success Factors and Lessons Learned**

The experience gathered through implementing this project showed that, in order for cross-border cooperation to be genuinely mutually beneficial, a shared and equal level of motivation and commitment is required - something that is more likely when both regions are actively involved in defining a joint agenda and planning activities early on, during the project application phase. The partnership learnt that achieving concrete results requires a solid 'network management' process and the active engagement of partners in the regions. Only by properly training personnel and experts in how to maintain the heating systems piloted can ensure cooperation continues and that the project benefits are fully felt.

The Finnish partners found cross-border cooperation challenging. Being used to a more structured and planned process they had to adjust to a more *ad hoc* and flexible working mode (e.g. the lack of monitoring and low level of using indicators on the Karelian side). Success was ensured by personal contacts and the positive human dimension to this otherwise highly technical project. The coordination of the different funding sources was achieved through negotiations attended by lawyers who could inform the partners of any key legal issues that would have a bearing on implementation.

The Russian partners found that decision-making and administration created quite a heavy burden, largely due to the TACIS-funding involved. The ability to engage a research institute that could commit itself to such a risky and, in many respects, uncertain venture was essential. Firms could not have ensured a similar level of commitment (financially and otherwise) alone. Alas, the time-lag in receiving payments made it impossible for firms to play a leading role; the first payments were only received at the end of the project. The bureaucracy involved was sometimes considered a genuine bottleneck. Even with a high level of personal and organisational commitment, project management was deemed to be a challenge.

Overall, the project was successful due to the consistently high level of motivation shown by the participating communities and organisations, 'energetically' exploring innovative and sustainable energy and heating solutions for the future. Taking into account the relatively modest financial resources available, the results achieved and the experiences gained were very positive.