

Meeting EU target requires increased investment

# Croatia explores renewable energy

Since a few months the Croatian electricity market has been opened up to private producers. With the prospect of EU membership, abundant natural energy sources and the restructuring of the national energy market that is taking place, investing in renewables in Croatia looks to be an increasingly interesting option. But what are the real possibilities for private investors, and what problems might they face?

| *By Anke Truijen*



Hydropower in Croatia. Photo: Rainer Hackenberg, Corbis

'Demand for electricity is rising by 3% per year. Europe has set environmental targets that we must meet while the emission of gases is increasing along with economic growth. Now that Europe is forcing us to reform our energy market it's a great opportunity to develop renewables here,' says Igor Raguzin of the Ministry of Economics, Labour and Enterprise.

The EU has set a 2010 deadline for prospective member Croatia to generate 5.8% (360 MW) of its total energy production from renewable resources. At the moment renewables account for just 1.8% of production. On July 1, 2007 new laws came into force that provide a framework for the privatized production

*'I want to be able to show my grandchildren what I've achieved'*



Father Gavriilo shows the broken pump of the watermill. Photo: Anke Truijen

and sale of renewable energy. So the door is open for private investors. But just as with the use of renewables, the free market is still in its infancy and so private energy producers will have to feel their way.

That's why it is sensible to start small, believes Jon Exel, director of the Croatian-registered EKO-energetika, a development agency concentrating on renewable energy and economic development. He intends to produce renewable energy at a local level using hydro power. Croatia derives some 50% of its total energy provision from hydro power plants, but they are not yet geared to sustainable use.

The national park of Velebit lies around an hour's drive inland from the coastal resort of Zadar. This green valley, home

to several rivers, streams and villages, is ringed by bare, rocky mountains. On a sunny autumn day the inhabited areas look deserted and it is evident that the war of the early 1990s has left its mark: young people have not returned, work is scarce and with the popularity of the coast, it is difficult to attract tourists.

It is precisely here that EKO-energetika sees potential for generating renewable energy. Exel has been involved in renewables consultancy for some 15 years now, writing policy documents on energy use for the World Bank and various African and Asian governments. He explains his project: 'What we need is constant water pressure, a site where a pump can be installed and the co-operation of the locals who stand to benefit from our project. We want to give an example of how to produce renewable

energy and invest in the local economy and tourism sector at the same time.'

Exel and his organization look for old water mills to renovate to produce clean energy. The project is open to local investors who can recoup their outlay through the sale of the power generated. In addition the renovated mills should make the area more attractive and stimulate eco touristic activities and tourism. It's for that reason that the local rafting association and monastery have also become involved in the project.

The water mill in which Eko-energetika is interested lies in the Krupa valley which is also home to a centuries - old Orthodox monastery and church. The rundown old mill is situated opposite the monastery, which is surrounded by tall trees and clear running waters. Father Gavriilo, with long black beard, and dressed from head to toe in material of the same colour, owns the mill and shows us the broken pump.

Father Gavriilo: 'Initially we had our doubts, but now we are happy about the arrival of these investors. We didn't know what to do with this broken pump. And they have guaranteed us that the mill will be restored to its former glory without dozens of pipelines ruining the landscape and without damaging the natural beauty of the surrounding area.'

Many other locals share the priest's original misgivings about energy projects. Igor Raguzin from the ministry of Economics, Labour and Enterprise is struck by the lack of interest in climate issues and renewable energy. While local support is necessary in order to realise a project. Raguzin: 'Now that we want to renovate the old hydro generating plants we see that local politicians and

residents are reserved and sceptical. They fear that such a large hydro-plant will damage their environment while somebody else profits from their water or land.'

Exel's project appears to have won through, although the contract has yet to be signed. Together the monastery, the rafting association and Eko-energetika have drawn up a twelve-year plan with the aim of generating 10 MW of power, provided the pump and water supply allow. Whatever happens, the mill will supply power to the monastery and the remainder will be sold to HEP, the national electricity utility responsible for the production, transmission and distribution of electricity.

Kresimir Stih is responsible for the energy sector within the Croatian Chamber of Commerce and so he is aware of the interest of private energy producers. What does he think of the Eko-energetika project? Stih: 'This sort of small scale project is easy to realise because at 10 MW there are no distribution problems. And there is always water. So it always yields results.'

Exel knows he isn't going to earn a fortune from the project. 'We're not in it for the money. We want to provide

an example to the energy market about bundling forces. And it's also a question of pride. I want to be able to show my grandchildren what I've achieved.'

Exel expects to recoup 30% to 45% of the investment if they can install 10 MW capacity. An investment of some €15 to 25 million, is financed through bank loans, own capital and investors.

Stih notes that wind farms have also attracted a lot of interest from private investors. Stih: 'The only problem is that with wind you can generate a huge capacity, but won't be able to distribute the power because the Croatian network isn't ready yet. Added to that it's not a good idea in my view to pack the whole Croatian coast - where there's the most wind - with wind farms.'

Exel has to admit that setting up renewable energy projects in Croatia requires great reserves of patience: 'You are obliged to carry out numerous studies on the feasibility of your project which have to be approved at a number of different levels. Fortunately we can absorb the financial costs of that application period.'

Igro Raguzin of the ministry: 'Yes, it's true that you have to go through a lot of procedures which may be a deterrent

for the entrepreneur. But for us it is important to safeguard the public interest. Don't forget that we are still in a development phase when it comes to the fields of economy and energy. That's why we are so careful.'

*Private energy producers will have to feel their way*

For Exel at least it is worth the effort and he believes he will make a profit: 'The HEP is always obliged to buy our electricity because it is renewably generated. And there are fixed rate tariffs. The demand for renewable energy will also continue and continue to grow.'

Nevertheless Kresimir Stih thinks that it is still too early to say that renewable energy will become the alternative for the Croatian energy market. Stih: 'The current private investment share could generate some 2000 MW. But the question is whether the existing network can transport the new capacity and if there are sufficient locations. And there needs to be a balance in the use of renewable resources. At the moment wind looks interesting but the government wants to generate only a certain percentage from wind. We have to use the target of 5.8% to see what the impact will be on our energy system. Then we can see how we will take it further in developing the market.' ■



Hydro-electric dam in Croatia. Photo: Bryan Peterson, Corbis

#### Total Primary Energy Production in Croatia

- Hydro power 31.7%, (conventional)
- Natural Gas 40.4%,
- Crude Oil 20.3%,
- Biomass 7.5%
- Renewables - other 0-1%

Total: 197,23 PJ (2005)