

Danilo, a windfarm with an output of 43.7 MW, is the largest operational windfarm in Croatia and the Western Balkan region. It was constructed in 2013 following commissioning of the turbines, an extensive testing period, as well as a technical exam. All necessary permits and approvals were issued in July 2014. As of July 16, 2015, this windfarm is in full commercial operation.

This is the first wind farm in Croatia to be developed and implemented by the Austrian based holding company, RP Global, which began its activities in Croatia in 2002. After a preliminary analysis of the market, RP Global detected several possible locations of interest on the Croatian coastal region meeting the following key criteria: (i) projected high wind potential based on available data (poor at that time); (ii) possible grid connections; (iii) assenting local community; (iv) accessible site (construction of access roads possible); (v) suitable area for a >30 MW wind farm; (vi) existing spatial plan; and (vii) no activities of other companies on the same site.

Although at that time some 50% of the sites in Croatia were on the islands, RP Global was wise not to consider any of these sites, because a few years later, the Ministry of Economy decided to prohibit wind projects on the islands and 1000 m from the coast line (“Regulation on the protection of the coastal area” Official Gazette 128/04). Many developers suffered great financial losses due to this unreasonable decision, which is no longer valid.

In 2002, RP Global created a “short list” of eleven possible locations for wind farms and applied for a location permit so that measurements could be taken on all potential sites. During 2003, talks with all local municipalities were held and the criteria mentioned above analysed further. Before the end of 2003, a decision was made to commence measurements on five locations in the counties of Sibenik-Knin, Split-Dalmatia and Dubrovnik-Neretva. The first measurement tower was installed in Bubrig on January 29 2004, and two days later in Velika Glava.

At that time there were three separate locations in the spatial plan, Velika Glava, Bubrig and Crni Vrh which have since been amalgamated into one large project, which today we call the Danilo Windfarm. January 2004 is considered to be the start of development of RP Global’s first Greenfield project in Croatia.

There were two main reasons why this project became the highest priority project for RP Global:

In Sibenik-Knin County, less than 20 km from Danilo, the second hydro power plant in the world was built in 1896, and Šibenik was the first city in Europe to have street lights running on current electricity. Šibenik is proud of these facts and is particularly favourable to promoting renewable energy projects.

After six months of collecting measurements, the results on both Velika Glava and Bubrig showed that the wind potential in these locations was superior to other sites.

Before the end of 2004 the first documents for the EIA and the Grid Connection Study were prepared.

In RP Global's experience, one of the most important principles during the development phase is balancing investment in development with the risk that the project will not ultimately be implemented for whatever reason.

The Environmental Impact Study (EIS) process is the most time consuming and costly process in the early stages of development, which is why RP Global tried to complete the documents concerning the analysis of crucial environmental issues in a swift and timely manner.

Bird monitoring was one of the main activities that had to be undertaken, because our findings in this regard could have potentially stopped the project. In the later stages of development, bat

monitoring also had to be undertaken as a condition requested by IFC before financial closing.

#### Legal Framework

Development of any renewables project in the early stages is very much influenced by the existing legal framework. In actuality, there was no legal framework for wind energy in Croatia until July 2007 and it was not viable to rush into or spend too much on the project at this stage. Although the "Package of Energy Laws" was adopted in 2001 (Official Gazette 68/01), created a legislative environmental for renewable energy, there were many important issues which had to be defined following adoption of the Package of Energy Laws by the Ministry of Economy through the sub laws/Enactments and Ordinances.

In fact, RP Global was aware that the implementation of wind farms was possible, but when and under which conditions - nobody really knew. It was even reasonable to expect that a feed-in tariff system would be adopted, but the price and duration of the PPA was not known. Until

2005, the pressure to adopt a full legal framework was not that great, but the fact was that no power plant could be legally implemented according to energy laws adopted before 2001, the Croatian power utility HEP was no longer entitled to sign PPAs, and the rules of the game had not been adopted by the Croatian Market Operator, HROTE. For these reasons, pressure from all sides was rising, and the Ministry of Economy made a "Solomon's decision;" they ordered HEP to sign the PPA for the first Croatian windfarm, Ravne 1, on the island of Pag.

Development of this windfarm was to be based on pre-2001 laws on regulation and price, even though the power plant was to be constructed under the laws constituting the new energy package. In reality, the first windfarm was “illegal” for several reasons: it provided for a 10 year PPA with HEP instead of HROTE (or HNOSIT at the beginning); the price and duration was to be adjusted to the future definition in the non-existing / assumed-to-be tariff system; the 5 MW limit was exceeded; and the windfarm was built on an island after the Regulation on the Protection of Coastal Areas was adopted, restricting windfarms on the islands. A second Croatian windfarm, Trtar/Krtolin, with 11.2 MW of installed power was also implemented before the sub laws were adopted in July 2007. In actuality, the decision to push HEP into a PPA with a private producer before having a legal framework was one of the best (if not the best) decision at that time. It was crazy enough to invest while waiting six years for the passing of the regulations, and so having the first windfarm in operation was the best outcome for future projects. The project was small enough (5.9 MW) to check the influence on the grid on a smaller scale and to allow for the monitoring of other aspects of this new technology. Finally, in 2007, the regulations long awaited by developers were adopted. Developers waited six years instead of six months, but the regulations that were passed in 2007 provided the legal framework which enabled the implementation of additional wind projects. At this stage, RP Global immediately started to prepare the documents for the Preliminary Energy approval - a kind of site registration managed by the Ministry of Economy. Up until that moment, it was possible to have a situation where several companies were issued a location permit for the same site. Now developers are issued a sort of “Location ID” exclusively for a certain region. If you develop the site and fulfil the obligations (to start the measurement and issue the permits on time) you can simply apply for permits or land usage by showing this ID. The only problem with this ID was the fact that it was free, which enabled the trade of locations. You could simply register a large number of sites (no limit) for a few hundred Kuna and sell them for € 20,000 - 50,000 thousand each. It’s not a problem if someone develops several locations and decides to sell one or two projects, but there is no reason why anybody should have the possibility of registering twenty locations only to turn around and sell them, without any intention or possibility of developing the sites into wind farms. A simple piece of advice for all governments who might have a similar “registration

system” is to implement a reasonable fee, perhaps in the region of EUR 5000 – even as a deposit – to avoid this kind of land trading.

#### Decision Makers vs. Developers

During the development stage RP Global had to work with four different levels of government. While a private developer shouldn’t care which political party wins elections, an effective energy strategy requires consensus and long term stability without frequent changes

to the legal framework. Obviously, it is impossible to avoid any changes entirely, since we are witnessing a very challenging time for the whole sector and the decision makers in each country have to consider possible adjustments to the existing environment, or even to adopt an entirely new legal framework and take the best direction possible.

But developers/investors do expect decision makers to consider all aspects when making decisions, including understanding the needs of developers/investors, and the consequences of their decisions through direct discussion. Investors expect a clear and stable system, which

will allow banks to finance renewable energy projects. Sometimes a problem which does not seem to be significant can disable the development or implementation of an entire project.

RP Global has faced many challenges in developing wind farms in Croatia, but by the end of this year, 420 MW of wind farms will be operational in the country. Other countries in the regional area are following suit, and the next large wind farm in the region will be implemented in Montenegro. In 2015 it is hard to believe that there are no wind farms in operation in Serbia or BiH – the first kWh were expected a long time ago. It seems that there is no

government decision restricting wind farm development and there are clearly enough companies which would very much like to invest and implement such projects, as well as available financing. So, what is the problem? Or better yet – are the problems really that big that they cannot be overcome?

In Croatia, investors are convinced that it is still possible to secure grid connections for further MWs. There is interest from investors and the banks, but it is very hard to tell when it will be possible to implement additional wind projects. The Law on Renewable Energy Sources is (finally) in the last stages of preparation, and should be adopted by the end of this year (according to Ministry of Economy). However, there are still arguments being made that wind

development should not be provided because, for example, it does not generate enough

employment. The fact is that even though wind energy involves a new technology where energy is produced without any manpower, during the preparation of the project, a whole army of experts are engaged on the preparation of studies, design, legal work and financial analysis and are all almost exclusively local experts.

#### RES Association

RP Global noticed very early on that all companies were having the same or very similar problems. So, we decided to establish the Association for Renewables in order to communicate as a unified group of developers with the relevant government institutions. RP Global

also promoted renewables and discussed internally important issues. Twelve companies (nine developers and three producers) founded the association in early 2003, including RP Global, and in only three years the association reached 145 members, companies and institutions.

The association used all existing contacts to open discussions with the Ministry and other relevant institutions, and the Association for Renewables was consulted in the drafting of the renewable energy regulations as a result. When some more recent regulations were passed

without the input of the private sector, an adjustment was necessary almost immediately after being published, which likely could have been avoided if only the Association for Renewables had the chance to check the final draft before adopting the procedure.

This is a very challenging time for renewables. It is very important that the Government of Croatia makes effective strategic decisions, which are in accordance with EU directives and recommendations, and in Croatia's best interest. There are so many important issues which need to be properly considered, therefore I believe now, more than ever before, communication among all stakeholders should be open and transparent. Croatia has great potential for renewables, useful experience with operating power plants, and excellent experts, but is still dependent on energy imports. A number of existing power plants will be closed in the years to come, so this is an environment which requires a proper strategy and stable system.

#### Implementation Expectations

Back in 2007, when renewable energy regulations were published, RP Global believed that problems faced by developers were solved. A clear regulatory environment in which projects could be developed was created, alongside a supportive network which made high-quality projects feasible. However, even the best regulatory framework does not mean that implementation will be easy or quick. RP Global applied for a location permit for Danilo

hoping for the permits to be issued by the end of 2008, so that implementation could begin in 2009 by the latest. But obviously, this was not the case. A location permit, as stated in the regulations in Croatia, should be issued in 30 days or 60 days in some cases, but in reality, these deadlines cannot be met. There are so many approvals to be issued as part of the permitting process, and few are issued without problems or delay. By way of example, one particular approval for the Danilo project took six months to be issued only because the issuing institution did not have

a new Director for that period of time and nobody was authorised to sign the relevant document. Another institution changed its name just a few days before the arrival of the Danilo application arrived and it took weeks for the institution to be issued a new stamp. The permitting and approval process must clearly become more efficient if renewable energy sources are to be promoted effectively in Croatia.

In late 2009 when the Danilo project finally obtained its location permit, a new challenge arose with HOPS, the Croatian Transmission Line Operator which wanted to test a new scenario by dividing the construction of the substation into two separate stages, requiring two building permits to be issued. As part of this process, RP Global was required to sign a pre-grid connection contract (six months); transfer the initial funds (one day); and publish a proposal for the final grid connection Study (six months). In the meantime, RP Global was issued a new location permit, started preparation of the documents for the building permit (main design), and utilised a Wind Energy Converter to choose the most suitable turbine for this site. These time consuming procedures lead to a long development period and negative consequences

for the project, namely old technology, because basic approvals and permits (like the EIS) were issued for a specific turbine type which was not the most up-to-date technology several years later when installation begins.

It is for this reason the first wind farms in Croatia built between 2005 and 2008 consist of < 1 MW unit power / < 60 m hub height, which is now an outdated technology.

Negotiations with the banks for the financing of Danilo commenced in late 2011, with due diligence commencing in early 2012, implementation of the first wind farm in Croatia became a foreseeable reality for RP Global. March 26, 2013 will be fondly remembered as the date when the construction of Danilo commenced. Construction was finished in eight months, more than three months ahead of schedule, and within budget which was a significant achievement. The Danilo Wind Farm has produced 100 GWh over the past year and is a renewable energy success story. From an investor and developers' point of view, while RP Global is satisfied with its achievement, the environment for renewable energy

project development in Croatia could and should be significantly different - hopefully this will be the case in the future.