

Renewable Sources in aluminium industry?

Our company Talum is an aluminium producer, producing 90.000 tons of pure aluminium yearly. The process is highly energy demanding and consumes large amounts of electric energy although our electrolysis plant is very effective. In fact it is the second effective in the world regarding specific consumption of energy which is necessary to produce 1 ton of aluminium.

Generally the process to produce aluminium is highly energy demanding all over the world because a better solution as electrolysis has so far existing not been found.

We are convinced that in the near future every consumer of energy must at the same time also take care of energy production and effectiveness. And this should apply not only to industrial but also to service and housekeeping consumers.

Nowadays all the European aluminium production industry is facing the threat of uncompetitive position in the global market. High electricity costs and Carbon Dioxide taxes are opening the way to cheaper suppliers from the East. Arab world has a big advantage in investments and low cost energy which they use to produce electricity out of gas. China on the other hand has advantages in cheap work force and has no obligations to comply with environmental standards.

If Europe is not possible to protect her own basic metal industry then we must prepare for yet another lost part of sovereignty. Costs of our end products will in large part dictate foreign big suppliers which will on long term have the possibility to induce prices.

One of the possible solutions are the renewable sources and effective usage of consumed energy. Europe must continue to finance renewable sources with subsidies and take decisions to improve competitiveness of her own industry on global market. In this way it is possible to protect the environment and simultaneously enable European companies to flourish in future.

So the main activities that can improve industrial energy balance are investment in profitable renewable sources, use of own waste energy and implementation of new energy conversion technologies like fuel cells, heat pumps, CHPs, ORCs, etc.

Talum is planning to explore and realize all mentioned methods to improve energy independence. Namely we see the future of energetic in connectedness tightly between consumers and energy generation.

The energy is not getting cheaper these days therefore we are thinking about alternative solutions. Our company is having an everyday struggle with energy costs. Our strategic plan is to minimize all unnecessary consumption and to erect new sources of energy out of existent technology and other ones. Some of successful projects have already been realized and we are steady continuing this path. Our foundry plants produce lots of heat energy which we intend to reuse. This kind of energy can be accommodated and transmitted to nearby situated heat

consumers or in high temperature case transformed to produce electric energy. One of the main obstacles in reusing heat energy is its low temperature. Therefore we are preparing studies to rise temperature with heat pumps installations.

One of the rising stars on the field of energy production are the renewable sources like wind, solar, biomass and geothermal. Our opinion is that a company with intense energy issues must be prepared for new kinds of energy production technologies. In this manner we erected a biomass boiler house of 1,5 MW thermal energy which we use to heat our greenhouses.

In last three years we constructed the biggest solar plant in Slovenia. Till now it has an installed electrical power of 6MWp. The subsidy price of electricity produced out of ground solar plant is still relatively high (287€/MWh in 2011) but is losing on price every year. The main hindrance is the national quota which limits the construction of solar plants on ground to only 5MWp per year. Namely the construction of solar plants is taking place on our soil which is by the way an improved dump of our earlier out-of-date technology.

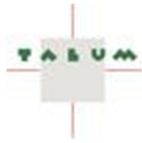
Current solar field of 6MWp has a surface of 11 hectares and we have still plenty of free space because all the dump area is nearly 50 hectares large.

Talum is offering not only the erection of solar plants trough all construction phases but is also providing investment studies, project engineering, leading and supervising the project. Also we take care for the activities after the project is realised. This mainly refers to accounting, technical control, maintenance and protection of the energetic objects.

What was the initiation for us to build such new plants, namely we are on the basis an aluminium producer? The answer lies in the global crisis. The price of aluminium was very low but the cost of electricity and raw materials especially alumina were increasing. On 2009 the economic situation forced us down to switch off half of the production. In this time we had some surplus in engineering resources and we took advantage out of it. We started to experiment with projects we never thought we would ever start. One of them was the construction of our first 1MWp solar plant in 2009.

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Solar field near Kidričevo (biggest in Slovenia) installed 6MWp on cca. 11 ha area

Suggested topic:

- **6)) Status and development of the European energy markets**
 - *How can an efficient competition in Europe be achieved?*