

Building for the future.**Interview on 3rd of July 2007. Rotterdam, The Netherlands.**

Mr. Nico Buis at the Netherlands Energicon Energie Advies (Energicon) is advisor of the Netherlands industry for energy saving programmes. He is involved in the European Building Performance Directorate and its Dutch equivalent.

Nico, you are well known as an advocate of building integrated PV. What are your main arguments in favour of it?

PV on buildings is the first concept to bring demand side power generation and all its associated advantages within the reach of home-owners and small business. Apart from that, it's a cost-effective use of PV. It produces savings all round. The mounting for the PV modules is cheaper, you save on building materials like roofing tiles, there are no extra site costs and no power losses, because the electricity is consumed on the spot, right where it's generated.

Integrating PV into buildings also means that entirely new concepts become feasible: things like zero energy housing developments, which produces as much energy as they consume. Integrating solar energy into the shell of the building forces architects to think about solar energy. Solar architecture demonstrates a concern for the environment and gives one a feeling of autonomy. Good examples help to bring solar energy to the attention of the public and will set the right precedent for future developments.

In urban areas, solar energy can be used in an aesthetically pleasing way. You need a large area of PV to make any substantial contribution to power supplies and if you don't look for that area in place where it's readily available, like on the roofs of houses, then I think you're on the wrong track.

Is that why there's always been so much enthusiasm for PV in the built environment in Europe, practically from the moment the idea was first mooted?

Well, the main consideration for most of Northwest Europe is the density of urban development. The idea of PV in the built environment has really caught on in countries like Switzerland, Germany and the Netherlands, and that's quite logical when you think about it. We've all got huge areas of roofs, which have hardly been used for anything so far, apart from holding up chimneys.

There's also an economic motive. Demand-side use of the technology means that PV is competing with the electricity charges paid by consumers. That's much easier than having to compete with the production costs of power stations, which is what large PV power plants have to do. In the polder or out in the desert, solar power has little economic value, so you have to compare as solar power plant there with a conventional power station sited in the same desert and producing electricity for something like 5 cents per kWh. PV can't compete on those terms yet. Not only that, but by the time that electricity has reached the urban areas, the costs will already have doubled or trebled. So the answer is to generate solar power in the urban area itself, where it is competitive. Think of solar power from the sun-drenched Gulf region. There is absolutely no problem, given that the built environment offers so much available space for PV.

In the early nineties, we had the thousand roof programme in Germany. Then there was talk of ten thousand and hundred thousand roof programmes. What do you think of that kind of idea?

It's fine, but I do have one reservation. It's not enough just to create a market. We also need major technological advances. For that reason, I think that technology

development and market development programmes will need to go hand in hand for at least the next five to ten years. Government subsidy schemes designed to produce rapid market growth run the risk of creating a situation in which claiming subsidies becomes an end in itself, and that can't be right. You need other incentives alongside market-oriented programmes like the thousand roofs scheme. Fiscal measures can help, as can agreements about the price to be paid for electricity fed back into the grid. Even then, it's important to keep on developing the technology in parallel with these kinds of programmes. After all, we're still waiting to see the development of PV-modules capable of making a substantial contribution to power supplies in Western countries on a purely commercial basis.

So wouldn't it be better to wait for the ultimate solar cell to become available and concentrate meanwhile on developing the technology?

No, there's no sense in that. The present generation of solar cells are effective and reliable. We can use them to obtain the necessary experience of the market. Don't forget, we're talking here about a market totalling hundreds of millions of houses - you can't get PV onto all those roofs one day to the next. We need the market to make technology development feasible and to launch new concepts.

How do you see it happening? A lot of countries now have their own national PV programmes. Wouldn't it be better to get together and set up joint international research programmes?

Well, living in a small country like the Netherlands, I'm certainly all for international cooperation, but I'm also in favour of national cooperation between all the various parties in the market. I think international cooperation is vital, but it needs to be organized in such a way that all the parties involved have the chance to make a real contribution. The problem with many international projects is that there is too much emphasis purely on knowledge transfer. Personally, I am very much in favour of the partners in such projects actually cooperating on developing something. In that respect, I can see plenty of opportunity for cooperation on what you might call the next generation of solar cells.

At the moment, PV is expensive compared to mains electricity. How do you think people can be persuaded to buy PV systems for their homes despite the price?

You're quite right that it's expensive: the kWh price is still about five times that of mains electricity. But it's all relative. People do buy things with a higher price per kWh, like a car, which is more expensive per kWh than a vacuum cleaner. The important thing at the moment is to introduce products, which are at least affordable. In the Dutch context, an example might be smaller PV systems measuring between 4 and 10 m². These could be feasible and affordable before too long. If they were sold as representing added value of some kind, systems like that could be attractive. New regulations are about to be introduced imposing maximum energy demand limits on new housing in the Netherlands.

The last question, "When you get older, losing your hair, many years from now", will you still be sending out messages about building integrated PV?

I won't need to. By then, it'll be part of everyday life. Think about it. When I was growing up, all the homes in the Netherlands were being connected to the gas mains. That's taken less than twenty years. Since then I've seen electricity consumption soar, with everybody acquiring television sets and all sorts of other households goods. And over the last twenty years I've seen the growing interest in energy conservation. For instance, home insulation has become pretty universal in

the Netherlands over that short period. The next thing is going to be an increasing interest in electricity-saving and low-energy cars. It may be slow process, but it will happen. So my great hope is that I'll live to see every Dutch home getting its own power station over the next twenty-five years. You only have to look at the government targets for sustainable energy, and you're already talking about a million Dutch homes being equipped with PV roofs by 2025. In the end, every single roof should have its own PV system - I really do believe that that's a realistic goal.