

## Solar cell research kick-off

### Introduction

This is the first newsletter for the project PV-NORD project, or *Widespread Exploitation of Building Integrated Photovoltaic in the Northern Dimension of the European Union*. PV-NORD is a Combined RTD Northern Dimension project supported by the European Commission, DG Energy & Transport. This three-year project started in January 2002, and consists of thematic research on eight prestigious northern European building projects, all showing the possibilities available by building integration of the photovoltaic (solar energy) technology.

Our aim is to pave the way for the increased use of solar energy in buildings by identifying the barriers encountered in the eight projects. Following to the organisation of the project, this newsletter is divided into three main headlines: *Events*, *Thematic research* and *Buildings*. The thematic research, in turn, is divided into five tasks, which make up two main work packages.

For background information about the research themes and buildings, please see the project web site [www.pvnord.org](http://www.pvnord.org). Feel free to visit this site to sign up for notification of the next newsletter, which will be published in late June. Happy reading!

Faithfully yours,

Dan Engström  
Co-ordinator PV-NORD

### Events

The kick-off conference was the main event during the first three months of PV-NORD. It was held in Utrecht, the Netherlands, in late January, hosted by Mr. Emil Ter Horst of Horisun. The next project meeting is being planned for late summer 2002.

The aims of the kick-off meeting were:

- Achieve a common view of the project
- Form task groups within WP3 and WP4
- Identify key issues
- Start making work-plans, including the first actions
- Close items regarding budget and administration
- Get to know each other



*A working session at the kick-off.*

An overview of the project was given by the co-ordinator, and of the budget, consortium agreement and other administrative matters by the former co-ordinator, Mr. Stefan Lindsköld, NCC. Most were agreed upon, but one or two points remain. A suggestion for solution is under consideration by the partners. The leaders of WP3 and WP 4 respectively, gave their view of our knowledge base and our focal points. The contents of the project were discussed. Some general and specific guidelines were given on the management of the buildings when it comes to their participation in the project: showing participation, documenting dissemination and so on. The web-site [www.pvnord.org](http://www.pvnord.org) was presented.

The rules for monitoring were also addressed. One of the main issues when it comes to solar energy development is how to monitor the in-service energy production. These rules are changing because building integrated photovoltaics (or BIPV for short) is no longer a purely experimental market. PV-NORD could become the pilot project for the new rules. For European Commission projects, monitoring issues should be cleared with the European Solar Test Installation (ESTI) at the Joint Research Centre (JRC) in Ispra, Italy. Mats Andersson, Energibanken ([mats@energibanken.se](mailto:mats@energibanken.se)) represents PV-NORD, whereas Harald W. Scholz represents the commission and ESTI. Mats Andersson has sent the working plan presented at the kick-off conference to ESTI for comments and discussions are under way. The main aim of the ongoing discussions is to reduce from earlier requirements both the data from each building and the resources necessary for monitoring. We have had a preliminary agreement from them on the principle for spot-measurements. We are working on a concrete go-ahead for this method.

We were also given a full-day study trip of PV-integrated buildings in the Netherlands. We were fortunate to be able to visit a number of installations: in Utrecht, Houten, Veenendaal, Amersfort, Amsterdam and Haarlemmermeer. We were guided around the buildings, got some study material to bring home and got a good insight into background, problems, development, technical solutions and so on of the different buildings and stages of the Dutch development.



*Residential area, Veenendaal*



*Houten Fire Station by Philippe Samyn*



*Amersfort*

## Thematic research

The following thematic areas are included in PV-NORD, with their respective heads and contacts.

Theme	Headed by	Contact	Email
WP1 Co-ordination	NCC	Dan Engström	dan.engstrom@ncc.se
WP2 Dissemination	NCC	Dan Engström	dan.engstrom@ncc.se
WP3 Technical Aspects	DBUR	Kim Wittchen	kbw@dbur.dk
Task 3.1 Aesthetics/PV-Integration	DBUR	Kim Wittchen	kbw@dbur.dk
Task 3.2 Environment	White	Beatrice Kindembe	beatrice.kindembe@white.se
Task 3.3 Electricity	Esbensen	Henrik Sørensen	h.soerensen@esbensen.dk
WP4 Management Aspects	Solpros	Heidrun Faninger-Lund	solpros@kolumbus.fi
Task 4.1 Financing & Ownership	KanEnergi	Jonas Sandgren	jonas.sandgren@kanenergi.no
Task 4.2 Management and ICT	Solpros	Heidrun Faninger-Lund	solpros@kolumbus.fi

### WP3 Technical Aspects of PV Integration

A questionnaire survey for the issues relevant to task 3.1 (Aesthetics/PV-Integration) has been initiated. A draft version is under consideration by the two other task-leaders, for them to complete for their respective tasks. The idea is to circulate the questionnaire in two phases. The first and major questionnaire will be used at the end of the design phase but before the building phase. This questionnaire will be finished by the time this newsletter is published. The second one will be circulated just after the building is finished. This questionnaire will be finished by August 2002.

There is a plan in task 3.1 to use a panel of architects for the evaluation of the buildings. This activity will be started when the buildings are finished, since the evaluation primarily has to be made from photos of the buildings. It is noteworthy that in order to make this process as smooth as possible, the project meetings will need to be carefully planned so that they take place in the relevant cities when the buildings are finished.

In connection with the common pre construction questionnaire for Work Package 3, task 3.2 (Environment) requires the collection of adequate environmental information to study the different kinds of environmental loads from the PV. Some questions treating the environmental aspects for the PV products have been developed in the common questionnaire to help the demonstration building's owners to consider environmental issues during the pre construction phase.

When it comes to task 3.3, Electricity, a format is being prepared for the all demonstration projects in PV-NORD, based on the experience from the IEA Task 7 and the information gathered on the Kollektivhuset project. The form will be part of the overall questionnaire for task 3.3 in the project. Especially the electrical design approach, the selection of components and the electrical design process will be documented through these forms, and the intention is through a further elaboration of these forms to extract more general recommendations on the electrical design on residential buildings with building integrated PV installations.

### WP4 Management Aspects of PV Integration

A questionnaire investigating the input-possibilities of the WP4 participants to the two tasks has been sent out and analysed. Even though all WP4-partners will provide input to both tasks, starting the more detailed analysing work in the two tasks of WP4 made it clear that the questions and issues of both tasks are going to be quite different. Keeping ICT and Financing together during the detailed analyses work of both tasks is logistically difficult and complicates the necessary person-to person contacts.

Therefore, the following has been agreed between the two task leaders of WP4.

- ✓ the two tasks will proceed separately with their individual work

- ✓ WP4 participants will be contacted and interviewed separately on the issues pertaining to Task 4.1 (Financing & Ownership) and Task 4.2 (Management and ICT)
- ✓ Before the next milestone in June, the two task leaders will come back together and check the outcomes of both tasks.

In Work package 4, it is planned to apply an empirical approach and rely on the demonstration projects to generate the primary data. In task 4.1, Financing & Ownership, has started by an exercise to identify suitable contact persons in the respective demonstration projects. Ms. Heidrun Faninger-Lund has carried this out. Shortly after Easter, we will follow it up by devising a questionnaire to make the initial contact. When it comes to task 4.2, Management and ICT, a joint questionnaire on interests/possibilities has been sent out to WP 4 partners. The literature survey work on national experiences has been started. A detailed questionnaire on management and ICT issues to both WP 4 participants and PV-Nord buildings is under preparation. Tasks 4.1 and 4.2 are on schedule.

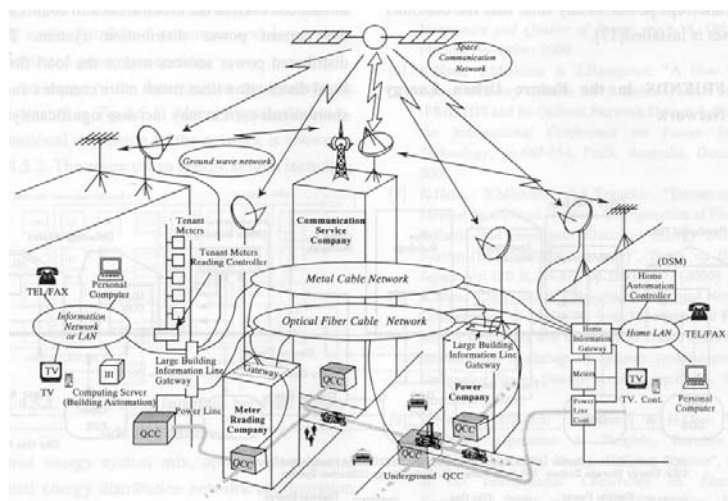


Figure: In the PV-Nord WP 4/Task 2 ICT and management issues relevant BIPV are reviewed under leadership of SOLPROS. The range of possibilities for ICT and PV are ample as demonstrated by this picture. ICT will not only mean management of PV but includes functional features that make simultaneously possible EMS & DSM, marketing, information services, home security and automation, and information network services.

## Buildings

The following building projects participate in PV-NORD, given with their respective contact persons.

Theme	Organisation	Contact	Email
Holmen / Grynnan	NCC	Tomas Sandstedt	tomas.sandstedt@ncc.se
Lysande	Familjebostäder Stockholm	Mikael Spolander	mikael.spolander@familjebostader.stockholm.se
Ekoviikki	YIT	Lasse Vanhanen	Lasse.Vanhanen@yit.fi
NCC Head Office	NCC Finland	Hannu Havanka	hannu.havanka@ncc.fi
Kollektivhuset	VBKK	Rolf Andersson	ran@bdk.dk
Solvang psychiatric hospital	VestAgder Fylkeskommune	Jonas Sandgren, KanEnergi	jonas.sandgren@kanenergi.no
PV-Parking	Essent Energie	Erik Knol	erik.knol@essent.nl
Shell Office Building	Shell IEP	Sjoerd Gort	s.gort@siepi.shell.com

## **Building A: Holmen/Grynnan**

These two buildings are located in the high-profile area of Hammarby Sjöstad, Stockholm, Sweden. The design process for the Holmen and Grynnan buildings is finished. At Holmen, the work with the foundations started in June 2001, and the work on the structure is on the 3<sup>rd</sup> and 4<sup>th</sup> storey of eight, including basement. Grynnan has the same design. The work on the Grynnan basement started in February 2002, whereas the work on the structure in the basement is about to start. When it comes to the solar cell installations, five tenders for contracts are under consideration. The purchasing process is going according to plan and should be concluded in mid-April. Energibanken are working with this together with NCC. The solar panels will be bronze-coloured, and produce 19.1 kW per building. The purchasing process also includes an investigation into which panels will be shadowed and therefore should not be put on the grid, and how the actual energy production should be regulated in the contract, if at all. At Holmen, some of the solar panels will be mounted at the end of the year, Grynnan being six months after Holmen. Holmen will be finished in June 2003 and Grynnan in December 2003.

## **Building B: Lysande**

The building Lysande (which is Swedish for glowing) is also located in the Hammarby Sjöstad area, in Stockholm, Sweden. The construction of this building, which is scheduled to be finished in the spring of 2003, will start in the autumn of 2002. The final details with the city authorities are being finalised. The purchasing process for the PV modules is being prepared.

## **Building C: Ekoviikki**

The Ekoviikki building is situated in a unique ecological building site in Helsinki, Finland. The status of this building is that the architectural planning, constructional planning and electrical planning for the PV installations are all finished. The technical matters concerning the PV-modules and module production are under control and on schedule. The construction of the building has started and the first two floors are finished (see photo below).



*The YIT building under construction in Ekoviikki, February 2002 (photo SOLPROS).  
By the end of 2002, the building will be equipped with innovative PV-balcony modules.*

## **Building D: NCC Head Office**

The NCC Finland head office project is also located in Helsinki, Finland. This project is now under planning. The building permit application will be sent to the authorities during April or early May. Construction will begin in August or September.

The authorities have put very tight limits to the expression of buildings in the area in question, because the construction site is along Mannerheimintie old buildings area. The architect and NCC have respected that old expression and made sure that they do not contrast with the traditional expression. For example, a glass facade area planned is not going to be allowed. The plan is also to move the PV-panels from facades to the roof. There is one offer of tender from a PV supplier and the demands of the PV-systems will be observed during the planning period.

## **Building E: Kollektivhuset**

The Kollektivhuset project is a renovation of an existing building at Hans Knudsens Plads, Copenhagen, Denmark. The Kollektivhuset project has progressed according to the overall time schedule of the PV-Nord project. The overall design considerations regarding the geometrical layout, the type and number of solar cells and the electrical detailing has been finished. The production of the solar cells is in progress and the installation has commenced. The remaining parts of the detailed design now deals with the final decisions on the layout of the inverters and details about the grid connections of the inverters to the lighting of the common corridors in the building and other common space used by the inhabitants. The documentation of the project has also been started with an article by the client in the magazine Vedvarende Energi (renewable energy) with an overview of the project.

The pictures below are all taken at the site showing the first PV-panels being > installed on the facade.



## **Building F: Solvang**

The Solvang Psychiatric Hospital is planned to be located in Grim, Kristiansand, Vest Agder County, Norway. In connection with this building, there have been some unexpected problems with the building, due to a national take-over by the Norwegian government of the responsibility for provision of health services. We are giving high priority to getting this demo-process on track again.

## **Building G: PV-Parking**

The real estate developer Weezenlandstaete is developing a parking in Zwolle. The parking is innovative because the cars are full automatically parked with the use of electrical lifts. PV will be integrated in the facades of the parking. Essent is an energy company in the North East of the Netherlands, which advises the real estate developer in realising the PV system.



For this project several offers for PV-systems were requested. At this moment one supplier for the PV-system is selected, because of the large knowledge of PV-systems integrated in facades. The supplier will install and supply the PV system. Because no contract is signed yet, it is not possible to give more information. More information is to be expected at the end of April or the beginning of May 2002. The start of the installation is according to planning app. August 2002. The PV system will have a capacity of 27,1 kW peak and a surface of 650 m<sup>2</sup>.

**Building H: Shell Office Building**

The Shell office building is located in Rijswijk, the Netherlands. The design of the PV pergola on top of our EPiCentre complex in Rijswijk has been finalized in January. There has been a fruitful cooperation between the architect; Van den Broek en Bakema, the engineers; Tebodin and the supplier of the PV panels; Shell Solar. The result is an architectural attractive design, with a good technical performance. The start of the construction is planned for January 2003.

Again, look for the next newsletter in late June. Feel free to sign up at [www.pvnord.org](http://www.pvnord.org)!