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## Deliverable 5.4 Recommendations for standardisation and harmonisation

### **CONCERTO INITIATIVE cRRescendo**

### **Combined Rational and Renewable Energy Strategies in Cities, for Existing and New Dwellings and Optimal quality of life**

Thematic Priority: Integrating and Strengthening the  
European Research Area (2002-2006), Sustainable  
Energy Systems

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# Standardisation and harmonisation in technical monitoring

## Methodology of data analysis and standardisation

For the technical indicators given in the Annex a methodology needed to be developed to derive the indicators in a proper way from the monitoring data. As all the Concerto projects needed to do this it made sense to discuss this among the projects, share ideas and experiences and work towards a common methodology. In fact, this was what we understood to be one of the goals of working together with Concerto Plus. Concerto Plus was considered to be a good platform for such exchanges and discussions.

Issues in deriving a common methodology would be for example:

- How to standardise normalisation with heating degree days in all climates?
- With what definition of floor area (gross or net, heated or not) would be worked?
- How to determine a Concerto project system boundary, for monitoring purposes?
- What integration interval to use to determine the portions of used renewable energy within the project boundaries?
- What baseline to use for newly built and renovated buildings?
- How to take into account various losses (generation losses, distribution losses)?
- What primary energy factors to use?

In July 2006 the first Concerto Plus meeting was held, with a workshop on technical monitoring. A discussion on system boundaries was held and some proposals were done from the side of Concerto Plus. However, it also became apparent that the differences in nature of the Concerto projects was large, from space heating using mine water to promoting pellet boilers in a given city to a Solar Island in cRRescendo. People from different projects brought up very different issues for discussion. In addition, there was interference from other issues that were uncertain at that time. For example, there was resistance to the idea that Concerto Plus could possibly impose requirements (with unknown budget consequences for the projects). This was felt by the cRRescendo people too to some extent, but this sentiment seemed to be present as well with other projects. All in all, it became apparent that afternoon that working towards a common methodology would be hard. Concerto Plus prepared a monitoring guide afterwards, proposing definitions and some parameter values, e.g. floor area definitions and set temperatures for heating and cooling degree days. This was deemed to be a practically feasible way to go for cRRescendo. We ended up using our own methodology based on our specific situation, but making sure that parameters and definitions used were clear and reporting what was used in the calculations<sup>1</sup>.

For also within cRRescendo, it was noticed that people from different communities were used to using the definitions common in their own country from national

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<sup>1</sup> This was done in D3.6.

standards (usually the standards used to derive the energy performance of buildings, as is required by the Energy Performance for Buildings Directive).

In hindsight, it can be concluded that it may have been too ambitious to assume that a common methodology would emerge from communities and projects working together, while at the same time (1) for many underlying issues national standards and approaches are used<sup>2</sup> and (2) the nature of the projects varied enormously. Standardisation requires a substantial and very focussed effort and should not be underestimated. For monitoring of PV-systems in European demonstration projects a common method was developed by JRC, which was quite successful. However, this concerned a very specific technology. Concerto projects are much broader in scope.

### **Monitoring on a neighbourhood level**

The spirit of Concerto is to work on sustainability on a community level: a neighbourhood, a town, a city. It is the result of all measures and technologies together that is interesting and needs to be measured rather than all measures on technologies individually. This has posed some challenges on approaches and standardisation as is described above, as monitoring requires a bottom up approach, starting with monitoring technologies, buildings and flows separately and adding up all the contributions to come to the overall community performance.

One specific aspect of monitoring on a community level that was not specifically required by the EU, but was discussed in the beginning of the project for the community of Almere, was the monitoring of energy flows in and out of the community on a short time scale (e.g. one quarter of an hour). With the increasing need for balancing of demand and (renewable) supply, penetration of smart meters and the development of 'smart grids', monitoring on a short time scale on a neighbourhood level will become more important. It would be worthwhile to develop generic indicators for this type of monitoring.

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<sup>2</sup> Even though harmonized standards for calculating building performance exist on a European level, Member States still use their own standards for determination of the energy performance of buildings (in which they can make use of the European standards).