

## Background

In parallel with the on-going MYRRHA design and research activities, attention should be paid in the project organisation and funding. Potential partners can only be approached for funding when both investment and operational costs have been estimated and that a proposal exists on the operational structure of the facility. Therefore we have produced a so-called "Business Plan", a project summary of limited size (about 50 pages length) but covering not only the purpose of the facility or its design, but also how we at present time envisage to operate it.

## Objectives

As European partners have already expressed their interest for the MYRRHA facility, the first target group for the Business Plan was the core of Belgian partners. If such a facility is to be built in Belgium, then a reasonable part of the funding, for both the construction and its operation, should indeed be made available from Belgian partners. The report should also be made available before the general election of the national parliament in June 2007.

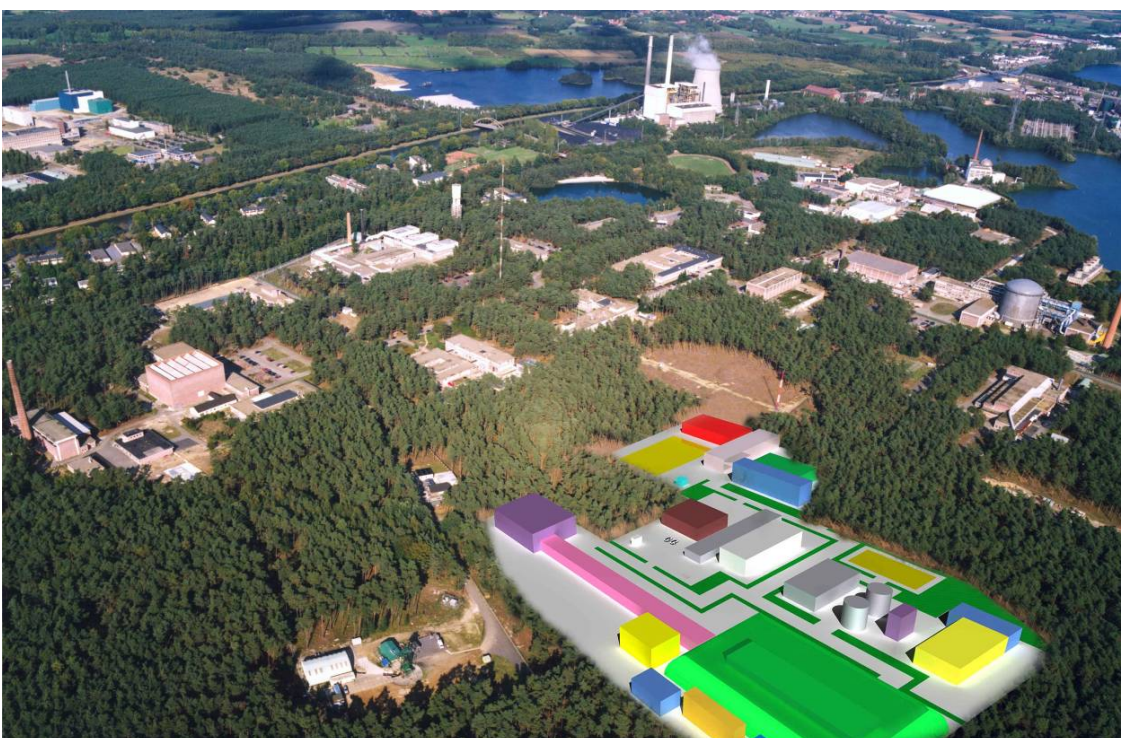
## Principal results

The "Business plan" has been made available in April 2007 and was divided into the following chapters:

- The purpose of the MYRRHA facility as a research infrastructure, its place on the European scene and several key dates for its construction;

MYRRHA as fast-spectrum multi-purpose facility, together with the Jules Horowitz reactor in France (thermal spectrum) and the PALLAS project in the Netherlands (dedicated radioisotopes production), would put Europe as a whole in a strong position towards the support for Gen III and the development of Gen IV reactors.

Taking into account the on-going design and research activities presented elsewhere in this report, we foresee to continue detailed design and specific research until 2013; while licensing and permitting activities should be started in parallel, in order to obtain the authorization of construction at the end of 2013. The different components would be made available on site until 2016 and assembled in 2017. Two years of commissioning will follow, so that the facility (see the picture below for its implanting on the site) could be made available in 2020.



- The project organisation;

Because MYRRHA is a very innovative system, a turn-key industrial partner willing to be an engineering, procurement & construction company will be difficult to find. Therefore we propose to organise:

- an International Entity with an *International Advisory Council*, able to guide the development of the facility;
- an *Owner Consortium*, with partners interested in both realisation and later operation of the facility;
- a *Project Central Management Team*, responsible for the daily project management, control and follow-up and
- a *Users/Customers Group*, able to define the needs of the facility and survey its realisation.

- A detailed explanation on both investment and operational costs;

Investment costs have been estimated (in M€ 2007) for a total of 700 M€, including about 20% contingencies. This total includes direct costs (such as land purchase, civil and mechanical engineering or supplies), engineering design and licensing; administration and management. This total does not include R&D costs and dismantling of the facility at the end of its life cycle.

Operational costs have been estimated to 38 M€/year and revenues to 15 M€/year. We have taken into account the experience with the BR2 facility and available figures for similar installations. The costs take into account personnel, supplies, external services and procurements as well as provisions for ten-year revisions and dismantling.

- Our present view on the financing sources;

We envisage that the core of Belgian partners would provide one third of all costs; the remaining costs would be covered by the international partners and the potential countries have already been envisaged.

- The economical and environmental impact of the facility.

A financial life cycle model has been drawn, in order to figure out when important cash flow would be needed. Taking into account the foreseen key dates (see above), 70% of the budget will be spent in the period 2014–2017 that corresponds to the construction phase.

The impact of the construction and operation of the new facility in terms of employment has been studied. It should be noted also that for one job created in the nuclear sector in the Mol vicinity, more than two jobs are created in the surrounding. Potential components suppliers have been envisaged. A preliminary estimate of the share for all "Belgian" suppliers indicates a figure of 30% that corresponds well to the funding share.

Finally we have drafted how the environmental impact of the facility would be assessed and then monitored for both construction and operational phases. Interaction with the public and the authorities has also been envisaged.

### Future developments

The present version of the "Business Plan" has been widely distributed in Belgium. It is now foreseen to develop an "international" version of this document, which can be distributed within the European partners and possibly even outside Europe.

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### Main reference

H. Ait Abderrahim, D. De Bruyn, M. Giot, P. Van Doorslaer, F. Hardeman, "MYRRHA Project, Multi-purpose hYbrid Research Reactor for High-tech Applications at Mol (Belgium), Business Plan 2007", SCK•CEN report ANS/HAA/DDB/31.B043000/85/07-17.