The Strategic Challenge of Capacity for German Decommissioning

INTRODUCTION
This paper offers a strategic perspective on the rapidly developing European Nuclear Power Plant (NPP) decommissioning scene, with a particular focus on the German market. Strategic themes of interest to international companies in decommissioning:

- Market size, valuation and timing
- Strength and capacity of German nuclear industry
- Routes to enter the German market and risks to be overcome

EUROPEAN NPP DECOMMISSIONING OVERVIEW

Europe is predicted to become the world’s largest market for Decommissioning & Decommissioning Consultancy (D&D) by the mid of the next decade. Over half of the European Union’s (EU’s) 222 NPPs are due to close by 2025, requiring expenditure by utilities on subsequent decommissioning of €36BN1, 2. 40 EU NPPs will be added to by 2025 to the pre-2010 stock of 74 shutted units.

- Decommissioning strategies, budgets and schedules will be dominated by national waste disposal readiness and policy.
- National power security concerns are pushing some countries into Life Time Extensions rather than closure at end of initially regulated generation.
- Utility cash ﬂows, especially in these days of depressed electricity market prices, can impact readiness to commit to short term expenditure on D&D.
- The capacity required may strain the resources of all parties.
- Economies of scale and scope will offer efficiencies of deployment on D&D.

The strategic challenge of capacity is the potential for the utilities and supporting industry to manage multiple larger reactors, on a smaller scale, such as Kalkar or Obreichen, in parallel and to compete in the international market. The scale of decommissioning work might overwhelm the regulatory departments of regional environment ministries, delaying projects.

- Self-performance – the German Works Council system gives employees a strong say in major decisions and normally results in utilities deciding to manage D&D work themselves.

EUROPEAN INDUSTRY RESPONSES

The EU has a qualitatively strong decommissioning industry with many of the top names in the trade firmly established in Germany, France, the Netherlands, Spain and the UK. However, the market is now starting to expand and there is a greater demand for D&D services.

- Recycling – strategic and technical contracts will be required to meets the demand for D&D services.
- Germany is an area of growth and a company may be required to project manage US, Japanese or Chinese D&D projects.
- Markets are predicted to be worth $10BN by 2025.

Figure 1: Nuclear Power Plant Closures in Germany (source: RWTH NET, 2015)

PROBABLE GERMAN PROGRAM

Germany’s decision to phase out nuclear power generation in 2011 followed the Fukushima incident. A legislated schedule for plant closures shut eight reactor blocks in March 2011 with 17 NPPs to be closed during the period to the end of 2022. Figure 1 shows the phases out program in terms of generation capacity.

Overview: nine plants in decommissioning (three yet to finish); nine in post operations shutdown and D&D, and eight plants still operating. Few have reached ‘green field’ status. Note early NPP decommissioned were smaller or prototype plants; there will be larger and more complex plant to deal with.

PHASING OF THE PROGRAM

Figure 2 estimates the aggregate NPP decommissioning schedule assuming:

- utilities achieve the legislated closure program and do not close NPPs early
- political pressure stimulates utilities to proceed with Immediate Dismantling strategies
- utilities manage decommissioning over a 15-16 year period from closure
- five years for post-operational de-fueling, licensing etc.
- then 10 to 13 years for dismantling.

The schedule peak in mid-2020s looks pronounced. Utility funding pressures, licensing delays, disposal facility delays and other industry events is a good introduction to the German nuclear environment.

PHASING OF THE PROGRAM

The decommissioning program may run as follows:

- continuing work at Obreichen (KWO), Wangersee and Stade,
- Philipshaven 1 (KPNP) and Neckarelzbahn 1 (GKN) will see a start to dismantling work by 2017,
- Isar 1 (KWO) and Biblis A and B will follow soon after
- other reactors closed in 2011 will follow as soon as licensing, resources and ﬁnances permit.

Figure 2: NPP D&D Timetable in Germany

Routes into the German market that mitigate these risks are:

1. Partnering – an international player brings both specialist capabilities in short supply and reciprocal access for a German company to an international market.
2. Forming a Consortium – learn about from an experienced partner and will reduce time to market and access to resources.
3. Local acquisitions – additional experience for the investor to find V&As targets, a German acquisition can provide knowledge of the market and access to resources.
4. Building a broader co-operation with a utility to participate in D&D elsewhere. Most utilities want to offer their personnel a long term future.
5. Founding a local company with a German partner. Specialist companies may find it feasible to set up a business if supported by local stakeholders.

To succeed in the German market, an international company should become an accepted member of the industry, contributing to the broader success of the industry as it faces the enormous challenges of the Nuclear Phase-Out. Participation in conferences and industry events is a good introduction to the German nuclear environment.

CONCLUSIONS

The European market for D&D services is approaching an inflection point. Within ten years, it may be the largest in the nuclear world with 123 closed NPPs requiring expenditure of €36BN. Germany will be a large program in the coming decades spending in total €30BN, with others as candidate sites.

- Time horizons for business development long
- Costs of local recruitment and complexity of local labor laws high
- Difficulties delivering projects proﬁtable due to unforeseen regulatory requirements or changing environmental conditions
- Determined local competition with broader customer relationships outweighing new entrants before they can become established

REFERENCES

1. Nuclear Energy Insider, November 2, 2012,
2. European Commission, 2012
3. KBBG – Kahl, Dr. Frank CHARLIER
4. Nuclear Energy Insider, November 2, 2012,