

Nuclear Energy Industry and Corporate Transparency

London, May 27 2008

COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2000 =

It is time to change the approach towards the nuclear energy sector

Past public opinion has not been supportive for nuclear energy industry.

e.g. sector excluded from SRI portfolios

Latest world's energy scenario raises new attention.

Corporate transparency is a key factor to decide about investability of nuclear sector companies.

ECPI adapts its model of Nuclear Sector Screening

ECPI is active in ESG (Environmental, Social, Governance) Research

PAST

Common Current Approach - Revenue Threshold

The application of the sector screening can be determined by client on the basis of a threshold expressed as revenue pct weight over total.

FUTURE

Enhancement in line with industry developments - ESG Rating

ESG rating makes inclusion/exclusion more thoughtful if adapted accordingly.

The challenge is: determining the most appropriate evaluation criteria.

Eurosif Nuclear Sector Report: Methodology and Credentials

Process

- Background research on current status of the nuclear energy sector and main market developments
- Identification of the key challenges of the industry, in terms of ESG, and their potential impact on business
- Finding related examples from European players and/or initiatives

Parties involved

- ECPI - gathering information and preparing the document
- Steering committee - giving valuable inputs and suggestions based on the knowledge of the market
- Eurosif - supervising, coordinating, managing, editing

Steering committee composition: **Dexia Asset Management; Fortis Investment; Groupama Asset Management; Schroders**

Eurosif Nuclear Sector Report: Key Challenges

Climate Change

- The largest single sources of carbon-free and base load electricity
- Timescale of project
- Risk of draught and/or flooding



Safety

- Lowest number of accidents with fatalities throughout the supply chain (1969-1996)
- Risk of extreme events: minimum probability of accident with very severe consequences
- Monetary damage highest for nuclear (calculations are limited by incompleteness and inconsistencies¹)
- New and safer Nuclear Power Plant (NPP) technology

Relative share of accidental fatalities in the stages of various energy chains

	Coal	Oil	Natural Gas	Hydropower	Nuclear
Exploration and production/ processing	Explosions and fires in coal mines	Well blowouts, accidents on drilling platforms at sea.	Well blowouts, accidents on drilling platforms at sea.		
Transportation		Tanker accidents at sea	Pipeline accidents		
Processing/ storage		Process accidents in refineries and tank farms			
Regional/ local division		Overturning and collisions of tank trucks	Pipeline accidents		
Powerplant or heat production			Process accidents	Overflow or failure of storage dams	Core meltdown with large release of radioactivity
Waste treatment/ disposal					
	0-5%	5-15%	15-30%	30-60%	60-100%

SOURCE: Paul Scherrer Institute (PSI). 2005. Severe Accidents in the Energy Sector. *Energie Spiegel* No.13.

¹ e.g. estimates of monetary losses are not available for a major part of nonnuclear accidents; lack of documentation of cost elements covered; the nature of the reported costs may be different

Eurosis Nuclear Sector Report: Key Challenges

Spent Fuel Waste Management

DIRECT DISPOSAL

- Plans for deep geological repositories¹
- Necessity to find large geological formations
- Nothing similar has been attempted on such a long timescale
- Uncertainty about costs²
- Low risk of proliferation

REPROCESSING-RECYCLING

- Saves uranium and reduces the volume of final waste
- Increased risk of nuclear proliferation (plutonium is separated)

OTHER CROSS TECHNOLOGY FACTORS:

- Progress in existing nuclear technologies
- An intergenerational issue
- Liberalisation of electricity markets: “who is going to pay for tomorrow’s waste management?”
- Difficulties in comparing provisions reported by companies

¹ e.g. Bure /France/ conversion of underground laboratory into repository site BUT a new law must be adopted by the Parliament for such a decision - project by 2012, decision by 2015 and final but reversible storage by 2020 or 2025; also plans in Finland, Sweden, USA)

² In 1996 ANDRA estimated the cost of deep geological disposal at 14 billion euros; today this estimation varies between 16 and 58 billion euros

Eurosif Nuclear Sector Report: Key Challenges

Plant Decommissioning

- Many NPPs will end their lifetime within the next two decades (expenditure is rising²)
- The real costs are difficult to assess¹
- Timeline can take up to 100 years
- Contaminated sites cannot be released for unrestricted use
- The discount rate adopted affects the economics of a project



Social acceptance

- The sector requires stewardship over generations
- The perception is that “It can never be safe enough”
- 50% of European citizens say they are not well enough informed
- It is important to have an open and two-way dialogue between stakeholders

Human Resources

- Lack of nuclear technology education and limited attractiveness for top-quality students
- Finding and training new personnel becomes a major challenge
- In France by 2015, 40% of the sector’s employees are expected to retire
- Risk in terms of: knowledge transmission, future technology development and safety

¹ e.g. Magnox (UK) liability averages £1.2bn (in 1989 forecast cost was £250m)

² about 107 NPPs are permanently shut down or undergoing decommissioning

Transparency is the key factor from the investor's point of view

An extremely difficult industry to assess

■ Nuclear safety and licensing is a country specific issue

- Sovereign national authorities
- Licensing procedures according to national law
- National nuclear safety standards
- No EU Directive (ONLY radiation protection), no EU Authority
- IAEA standards are not mandatory

■ Nuclear has become an international business

- Small number of vendors marketing their designs worldwide
- Multinational utilities, joint ventures, liberalized markets
- Components manufactured all around the world



There is a need for convergence and harmonization of standards/practices:

- Safety (standardized designs): WENRA, ETSON, EUROSAFE Forum, MDEP
- Joint inspections of vendors and component manufacturers
- Streamlined national licensing procedures
- Firm commitment before licensing begins,
e.g. UK - “White Paper” with “Statement of need”

TRANSPARENCY is the first step for ESG analysis as publicly available information varies from company to company

Transparency and Nuclear energy operators: the ESG approach

- Transparency is an effective enforcement tool to **enhance safety performance**
- Transparency **increases the motivation of individuals and institutions to meet their responsibilities in:**
 - (a) drafting rules and regulations;
 - (b) strictly verifying compliance; and
 - (c) enforcing necessary corrective actions
- Transparency provides access to relevant information to stakeholders

Some of the potential ESG issues related to operator's transparency include:

- Periodic, accurate and complete **public information** concerning **plant operations**
- **Language availability:** communication should not be restricted by national boundaries
- **Stakeholder engagement** (e.g. conducting surveys, information centers, organization of regular community meetings)
- Info about **measures and means for controlling and managing risks**
- **Safety assessment**
- Development of **international relations**

Transparency of Nuclear Energy operators: Case Studies

Safety assessment:

“In 2006 a total of 119 events of significance to reactor safety (83 last year) were reported to SKI. The number is the second highest in the Company’s history. An event is classified as INES 2; two events, classified as INES 1 according to IAEA’s internationally used seven-grade scale (International Nuclear Event Scale) for the classification of nuclear power related events.”

(Forsmarks Kraftgrupp AB /Vattenfall, E.On/, 2006)

Development of international relations:

“Most important event in this respect was the WANO Peer Review carried out at the Dukovany NPP in mid-June 2007. A team experts from 11 countries took two weeks to examine a variety of safety aspects of Organisation and Administration, Operations, Maintenance, Engineering Support, Operational Experience feedback, Radiation Protection, Chemistry, and Training.....The international team of WANO suggested 12 areas for improvement, and pointed out 10 good practices which are to be recommended to other nuclear power plants worldwide.”

(CEZ, 2007)

Disclosure about funding of future decommissioning:

“EDF is technically and financially responsible for the decommissioning of its nuclear power plants.... Decommissioning is carried out under the close scrutiny of the French Nuclear Regulatory Authority. At each stage, key milestones are laid out in conjunction with the ASN. An internal authorisation process specific to EDF and audited by the ASN is implemented between each milestone..... On 21 October 2005, under a public service agreement signed with the French government, the Group committed to completing its decommissioning programme within 25 years instead of the originally planned 50 years.”

(EDF, 2008)

Stakeholders engagement:

“For about ten years, Demoskop has been conducting annual surveys among the population in the Uppland/Gävle region on behalf of Forsmarks Kraftgrupp. In the most recent survey conducted in November 2006, 81 percent of the people expressed great or very great confidence in the Forsmarks Kraftgrupp. It represents a small increase compared with the corresponding figure from last year which was 79 percent.”

(Forsmarks Kraftgrupp AB /Vattenfall, E.ON/, 2006)

ECPI E.Capital Partners Indices

ECP International
9, rue du Laboratoire
L-1911 Luxembourg
Tel: +352 26 845633
Fax: +352 26 845634



E.Capital Partners
Corso Italia, 13
20122 Milano Italy
Tel: +39 02 8818121
Fax: +39 02 88181210

www.e-cpartners.com

Bloomberg: ECPS <GO>

Reuters: ECAPITAL

Disclaimer

This document has been prepared by E. Capital Partners S.p.A. and/or any of its subsidiaries and affiliates (the "ECP Group Companies") as part of their internal research activity. The information provided herein and, in particular, the data contained in this document are taken from information available to the public. All information contained herein is obtained from sources believed by it to be accurate and reliable. While the opinions and information contained in this document are based on public sources believed to be reliable and in good faith, ECP Group Companies have not independently verified the accuracy of such public sources. Because of the possibility of human, technical or whatever kind of similar error, however, such information is provided "as is" without warranty of any kind and ECP Group Companies, in particular, make no representation or warranty, whether express or implicit, as to the fairness, accuracy, timeliness, completeness, merchantability and/or fitness of any such information and opinions contained in this document.

Accordingly, neither ECP Group Companies nor any of their respective directors, managers, officers or employees shall be held liable for whatever reason (including, without limitation, liability in negligence) for any loss (including consequential loss), expense, consequential, special, incidental, direct or indirect or similar damage, whether or not advised of the possibility of such damage, in connection with the fairness, accuracy, timeliness, completeness, merchantability and/or fitness of the information and opinions contained in this document and/or arising from any use or performance of this document or its contents or otherwise arising in connection with this document.

Any opinions, forecasts or estimates contained herein constitute a high-level information statement only valid as at the date of its release. There can be no assurance that the evolution of the information contained herein and/or any future events will be consistent with such opinions, forecasts or estimates. Any information herein is at any time subject to change, update or amendment subsequently to the date of this document, with no undertaking by ECP Group Companies to notify such change, update or amendment.

This document is not, nor may it be construed as to constitute a recommendation to make any kind of investment decision or an offer for sale or subscription of or a solicitation of any offer to buy or subscribe for any financial instrument. Accordingly, this document may not be used as a solicitation or an offer for sale or subscription, and any solicitation or offer shall be made only in accordance with all applicable laws and regulation, including, whenever applicable, the filing of a prospectus with the relevant authorities. ECP Group Companies are not financial advisors subject to special authorization and thus do not provide formal financial advice in the area of investment nor perform any asset management activity. ECP Group Companies recommend to potential investors wishing to be provided with formal financial advice in the area of investment to contact a financial advisor duly authorized by the competent regulatory authority of its country.

ECP Group Companies publish researches on a regular basis. This publication has been prepared on behalf of ECP Group Companies solely for information purposes. All the information contained herein is copyrighted in the name of ECP Group Companies, and none of such information may be copied or otherwise reproduced, except for personal use only, further transmitted, transferred, published, disseminated, redistributed or resold, in whole or in part, in any form or manner or by any means whatsoever, by any person without ECP Group Companies' prior written consent.