

International Conference on Financing of Decommissioning

**Stockholm, Sweden
20-21 September 2016**

Konferens Spårvagnshallarna

WiFi access: konf1234

Conference Programme

TUESDAY, 20 SEPTEMBER 2016	
8:30	REGISTRATION & LIGHT REFRESHMENTS
9:30	<p>OPENING SESSION PART 1</p> <p><i>Introduction</i> Host: Johan Anderberg, SSM, Sweden</p>
9:40	<p><i>Welcome Addresses</i> Per Ängquist, State Secretary, Swedish Ministry of the Environment and Energy</p> <p>William D. Magwood, IV, Director-General, NEA</p> <p>Mats Persson, Director-General, SSM, Sweden</p>
10:20	<p><i>Overview of Expectations</i> Michael Siemann, NEA</p>
10:30	REFRESHMENT BREAK
11:00	<p>OPENING SESSION PART 2</p> <p><i>Introduction</i> Host: Michael Siemann, NEA</p> <p><i>Keynote – Implications of Potentially Underfunded or Uncertain Decommissioning Liabilities: An Investor’s Perspective</i> Pierre Georges, Standard & Poors, France</p> <p><i>Keynote – Financing “Stress Test” Methodology</i> Wolfgang Irrek, Hochschule Ruhr West, Germany</p>
12:15	LUNCH BREAK

13:30	<p>SESSION 1: FUNDING MECHANISMS</p> <p><i>Introduction</i> Session Chair: Jari Tuunanen, Fortum, Finland</p>
13:40	<p><i>Financing Arrangements for NPP Decommissioning in Switzerland</i> Raymond Cron, STENFO, Switzerland</p>
14:00	<p><i>Overview of the Financing Arrangements for NPP Decommissioning in Sweden</i> Annika Åström, SSM, Sweden</p>
14:20	<p><i>Describing the System for Decommissioning Financing for New Nuclear Power Plants in the UK</i> Robert Middleton, DECC, United Kingdom</p>
14:40	<p><i>Financing Arrangements for Nuclear Power Plant Decommissioning in the U.S.</i> Richard Turtill, US NRC, United States</p>
15:00	REFRESHMENT BREAK
15:30	<p><i>Description of the Financing Arrangement for Nuclear Power Plant Decommissioning in Belgium</i> Chantal Cortvriendt, FPS Economy, SMEs, Self-Employed & Energy, Belgium</p>
15:50	<p><i>Overview of the Financing Arrangements for Nuclear Power Plant Decommissioning Financing in France</i> Louis du Pasquier, Ministère de l'Écologie, du Développement durable et de l'Énergie, France</p>
16:10	<p><i>Financial Guarantees for Decommissioning of Canadian NPPs</i> Milena Kostova, CNSC, Canada</p>
16:30	<p><i>Overview of the Financing Arrangements for Nuclear Power Plant Decommissioning Financing in Japan</i> Yuki Shimazu, Ministry of Economy, Trade and Industry, Japan</p>
16:50	<i>Discussion</i>
17:55	<p><i>Closing of Session</i> Jari Tuunanen, Session Chair</p>
18:00 – 20:00	COCKTAIL RECEPTION

WEDNESDAY, 21 SEPTEMBER 2016

8:30	LIGHT REFRESHMENTS
9:00	<p>SESSION 2: COST ESTIMATION</p> <p><i>Introduction</i> Session Chair: Simon Carroll, SSM, Sweden</p>
9:10	<p><i>Costing Methodology for Decommissioning Nuclear Facilities in the Russian Federation</i></p> <p>Evgeny Komarov, Rosatom, Russian Federation</p>
9:30	<p><i>EDF Fleet Approach: Advantages and Challenges for Decommissioning Costs</i></p> <p>Sylvain Desecures, EDF, France</p>
9:50	<p><i>Comparison of Estimated and Actual Decommissioning Costs of José Cabrera NPP</i></p> <p>Emilio García Neri, ENRESA, Spain</p>
10:10	<p><i>Experience of Cost Estimation and Costs for NPP Decommissioning in the USA</i></p> <p>Michael Lackey, FLUOR, USA</p>
10:30	REFRESHMENT BREAK
11:00	<p><i>Costs of Decommissioning Nuclear Power Plants</i></p> <p>Geoffrey Rothwell, NEA</p>
11:20	<p><i>The Costs of Decommissioning in Korea</i></p> <p>Hyungi Cha, KHNP, Korea</p>
11:40	<i>Discussion</i>
12:10	<p><i>Closing of Session</i></p> <p>Simon Carroll, Session Chair</p>
12:15	LUNCH BREAK

13:30	<p>SESSION 3: RISK MANAGEMENT</p> <p><i>Introduction</i></p> <p>Session Chair: Louis du Pasquier, Ministère de l'Écologie, du Développement durable et de l'Énergie, France</p>
13:40	<p><i>Risk Management for Decommissioning – the IAEA DRiMa Project</i></p> <p>Vladan Ljubenov, IAEA</p>
14:00	<p><i>Evolving Practice for Assessing Uncertainty and Implementing Risk Management Approaches for Decommissioning Projects over Extended Time Periods</i></p> <p>Andrew Oldham, NDA, United Kingdom</p>
14:20	<p><i>Developments Concerning Risk Analysis for NPP Decommissioning in Sweden in the Estimation of Costs and Uncertainties for Decommissioning Projects for NPPs</i></p> <p>Fredrik De la Gardie, SKB, Sweden</p>
14:40	<p><i>An Economic Toolbox for Assessing Key Factors of Decommissioning Costs</i></p> <p>Jan-Horst Keppler, NEA</p>
15:00	REFRESHMENT BREAK
15:30	<p><i>Risk Management in the Swiss Decommissioning Financing System</i></p> <p>Rosalia Zeller, BFE, Switzerland</p>
15:50	<p><i>The European Court of Auditors Evaluations of the Implementation of EU Nuclear Decommissioning Assistance Programmes</i></p> <p>Pekka Ulander, European Court of Auditors</p>
16:10	<i>Discussion</i>
16:55	<p><i>Closing of Session</i></p> <p>Louis du Pasquier, Session Chair</p>



17:00

CLOSING SESSION

Introduction

Session Chair: Michael Siemann, NEA

Concluding Roundtable with Summaries by Session Chairs

Closing of the Conference

18:00

Adjourn

Who's Who?

WELCOME ADDRESSES



Per ÄNGQUIST has served as State Secretary in the Swedish Ministry of Environment and Energy since his appointment in June 2016. He has been responsible for working on environmental issues, urban environment agreements and urban development. From 2014 to 2016, Mr Ängquist previously served as State Secretary for the Prime Minister's Office, and was the Head of Administration for the Swedish Green Party from 2006 to 2014. Prior to his experience as Head of Administration, he also served as Political Advisor to the Ministry of Enterprise, Energy and Communications from 2003 to 2006 and was a Business Intelligence Analyst for United Minds from 2000-2003.

From 1994 to 2000, Mr. Ängquist worked at the Swedish Society for Nature Conservation, initially as Political Secretary before switching roles in 1998 to Press Secretary.



William D. MAGWOOD, IV has been the Director-General of the Nuclear Energy Agency (NEA) of the OECD since 1 September 2014. He has extensive experience in both the regulatory and developmental aspects of nuclear energy, including at the international level. From 2010 to 2014, he was appointed by the US President to serve as a Commissioner to the US Nuclear Regulatory Commission (NRC). Prior to this, from 2005 to 2010, he provided independent strategic and policy advice to US and international clients on energy, environmental and technology policy issues. During this time, he also sat on various advisory groups and provided technical and policy advice to members of the US Congress on nuclear research, education and climate change policy.

From 1998 to 2005, Mr Magwood was Director of Nuclear Energy at the US Department of Energy (DOE). During his tenure, he launched several important initiatives including the US Nuclear Power 2010 programme and the Generation IV International Forum (GIF). He was also actively involved in the work of the NEA, serving as a Steering Committee bureau member from 1999 to 2003, and as Chair in 2004 and early 2005.

Prior to his experience at the DOE, Mr Magwood managed electric utility research and nuclear policy programmes at the Edison Electric Institute in Washington, DC, and was earlier a scientist at Westinghouse Electric Corporation in Pittsburgh, Pennsylvania.



Mats PERSSON has served as the Director General of the Swedish Radiation Safety Authority (SSM) since his appointment in September 2012. He has extensive experience in government administration, including serving as Director General of the Swedish Board of Agriculture.

HOSTS & KEYNOTE SPEAKERS



Johan ANDERBERG is the Director of the Radioactive Materials Department at the Swedish Radiation Safety Authority. His responsibilities include regulatory oversight of Sweden's fuel cycle facilities, nuclear facilities undergoing decommissioning, radioactive waste management and nuclear waste financing, as well as transports, nuclear non-proliferation and the physical security of nuclear facilities and radioactive materials. Johan Anderberg is a former director at the Swedish Geological Survey and of the decommissioning of the Swedish National Oil Stockpile.



Pierre GEORGES is a Director and Sector Specialist for the EMEA Utilities team, based in Paris, France. He is responsible for the utilities sector research and is directly in charge of large utilities in France and in Southern Europe. Mr Georges has extensive experience in credit and capital markets acquired through rating agencies and investment banking, working on the full rating spectrum, from investment grade to high yield. He has also previously worked in a broad range of industrial sectors including real estate, retail, consumer goods, and oil and gas.



Wolfgang IRREK is a Professor of Energy Management and Energy Services at the Institute Energy Systems and Energy Business of Hochschule Ruhr West University of Applied Sciences (HRW). He joined HRW in 2010, one year after the university was founded by the state of North Rhine-Westphalia. Besides teaching and contributing to the development of HRW and its Energy Campus Lab, he also works on national and international framework conditions, strategies and instruments in energy industry and energy policy in the context of liberalisation and sustainability. Dr Irrek has been working on nuclear decommissioning financing issues since 1995, and in 2006-07 he co-ordinated the study on "Comparison of Different Decommissioning Fund Methodologies for Nuclear Installations" on behalf of the European Commission. In the last two years he has been deeply involved in the discussion on possible changes in the German decommissioning financing scheme and contributed to respective scientific studies.



Michael SIEMANN is Head of Division of Radiological Protection and Radioactive Waste Management at the NEA, a position he has held since 2012. He previously worked at the Federal Office for Radiation Protection (BfS), Germany, as the Head of Section for Safety of Nuclear Waste Management. He served as the Radiation Protection Supervisor for the Asse and Morsleben final repositories. Prior to that, Dr Siemann worked for the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) where he was responsible for supervisory control of BfS as the operator of the Asse repository. He also served on the faculty of the Institute for Repository Research of the Technical University Clausthal, as a senior scientist, research group leader and lecturer.

SESSION CHAIRS



Simon CARROLL is a Decommissioning Specialist at the Swedish Radiation Safety Authority (SSM). He is a member of the NEA Working Party on Decommissioning & Dismantling (WPDD) chairs its Decommissioning Cost Estimation Group (DCEG). He has also participated in the NEA Nuclear Development Committee's Expert Group on Costs of Decommissioning (COSTDEC). He represents Sweden in the European Commission's Decommissioning Funding Group (DFG) and its respective Nuclear Decommissioning Assistance Programme Committee (NDAPC). Since 2009, he is a member of the United Kingdom's Nuclear Liabilities Financing Assurance Board (NLFAB), advising the government on financial arrangements for decommissioning of new nuclear power plants in the UK.



Louis DU PASQUIER began his career at the French Insurance and Bank Supervision Authority before joining the Ministry of Environment in the General Directorate for Energy and Climate, where he manages a team dedicated to the control of long-term nuclear costs financing. Mr du Pasquier represents France in the NEA Decommissioning Cost Estimation Group and at the European Commission's Decommissioning Funding Group. He also serves as the French representative for NEA Nuclear Law Committee (NLC), which is involved in international conventions on nuclear civil liability and in the application of the related international conventions. Mr du Pasquier is also a member of French Actuarial Institute.



Jari TUUNANEN worked at the Technical Research Centre of Finland (VTT) in experimental and computational nuclear reactor thermal hydraulics until the late 1990s, and led VTT's advanced light water reactor research programme. In 2004, he joined the Finnish nuclear operator TVO where he worked as a R&D manager. In 2008 he began working at Fortum as Head of the Nuclear Waste Department. In May 2016, he switched roles to Fortum's Loviisa Nuclear Power Plant as Lead of the Nuclear Fuel and Waste Unit. He is also a member of Posiva's Technical Committee and an Observer for the Board of the Swedish Radioactive Waste Management Company (SKB).

SPEAKERS



Annika ÅSTRÖM Annika has an Executive MBA in Business Administration and a Bachelor Degree in Economics. She has worked with financial issues related to radioactive waste and decommissioning at SSM for six years. Since August 2015, Ms Åström has served as Head of the Nuclear Waste Financing Section at SSM. Before working at SSM, she was a consultant at Sweco Environment AB from 2003 to 2011. Throughout her experience, she has been involved with financial issues related to water and wastewater sectors. Ms Åström is a Member of the NEA Decommissioning Cost Estimation Group (DCEG).



CHA Hyungi is Senior Manager of the Backend Management Strategy Team at Korea Hydro & Nuclear Power Co., Ltd (KHNP). He has previously held management positions on KHNP's Human Resources Team and Power Planning & Administration Team. Before joining KHNP he worked at Kori Nuclear Power Plant I in Korea, where he served as a Local Turbine Operator before being promoted to Manager of the Mechanical Engineering Team.



Chantal CORTVRIENDT has served as Permanent Secretary of the Belgian Commission on Nuclear Provisions since 2004. During her time as Permanent Secretary, Ms Cortvriendt has been involved in the general set-up of the Commission, its methodology revisions, and the follow-up of legal and financial issues. She also handles nuclear export, non-proliferation and policy issues. She previously worked in the Nuclear Energy Division of the Federal Energy Department.



Raymond CRON has been a member of the Administrative Board of the Decommissioning and Waste Disposal Fund for Nuclear Power Plants in Switzerland since 2012, and became President of the Board in 2016. He also serves as CEO of Switzerland Innovation in Berne and as a board member of several other Swiss companies. Before joining Switzerland Innovation, Mr Cron held top management positions in the Swiss construction and real estate industry, and served several years as Director General of the Swiss Civil Aviation Authority.



Fredrik DE LA GARDIE has worked at SKB since 2009 as Principal Investigator LILW specialised in the field of decommissioning. His work is performed in close co-operation with nuclear power companies and includes estimating costs and waste inventory, in addition to decommissioning planning and how LILW is managed and deposited. Mr De la Gardie has also been involved with the OECD and the NEA since 2009 and is a member of WPDD and task group of DCEG.



Sylvain DESECURES has worked at EDF since 1994 where he served as Management Controller for his first five years at SEPTEN. He was then promoted to the role of Deputy Project Manager for EPR, which he occupied from 2000 to 2006. Since 2007, he has worked at Ciden as Chief of Decommissioning Cost Estimation for Parc REP EDF. He is also responsible for the REP Standardisation Project which aims to optimise the technical aspects of the future decommissioning programme of the Parc REP, and to secure the cost estimation for the programme.



Emilio GARCÍA NERI joined ENRESA, the Spanish National Agency for Radioactive Waste Management and Decommissioning in 1993, and he has been a Member of the International Relations department since 1999. He is responsible for co-ordinating and monitoring the international activity of ENRESA in the fields of LILW management and decommissioning, expert involvement for technical projects, and bilateral agreements. Currently, he is the national representative in the Decommissioning Funding Group (DFG) and the Nuclear Decommissioning Assistance Program (NDAP) for the European Commission, National Representative for the IAEA Waste Technology Advisory Committee, and member of the Steering Group of the International Decommissioning Network (IDN).



Jan-Horst KEPPLER is Senior Economic Advisor in the Nuclear Development Division of the OECD Nuclear Energy Agency (NEA). He is also Professor of Economics at the Université Paris – Dauphine where he directs the Chair European Electricity Markets (CEEM). His research focuses on investment in low carbon technologies such as nuclear energy. Recent publications include: *Nuclear New Build: Insights into Financing and Project Management* (2015), and *Nuclear Energy and Renewables: System Effects in Decarbonising Energy Systems* (2012).



Evgeny KOMAROV is a Decommissioning Specialist at the State Atomic Energy Corporation “Rosatom” in the Department of Nuclear Decommissioning. He is responsible for the development and implementation of state policy in the field of decommissioning. He took part in the development of the federal target programme “Ensuring Nuclear and Radiation Safety in 2016-2020 and for the Period until 2030”. The approach of the decommissioning of nuclear installations in the Russian Federation was developed under his leadership, in addition to the corporate information system of decommissioning nuclear facilities of Rosatom. Mr Komarov is also a member of the NEA Radioactive Waste Management Committee Bureau and the Working Party on Decommissioning and Dismantling.



Milena KOSTOVA is a Senior Project Officer for the Waste and Decommissioning Division of the Canadian Nuclear Safety Commission. Her current responsibilities include conducting assessments of Decommissioning Plans and Financial Guaranties for the CNSC regulated facilities and activities. She has over 25 years of experience in various aspects of nuclear and radiological safety, risk assessment, emergency response, licensing and regulatory oversight. Throughout her career she has worked for the nuclear industry: in research and development, the consultancy and the regulation. She has significant experience in managing large multidisciplinary decommissioning and remediation projects.



Michael LACKEY is a Vice President in the Power Division of Fluor Corporation, responsible for the Nuclear Business Line. He has over thirty years of nuclear construction, start-up, operations, and decommissioning experience at commercial reactors and US Department of Energy (DOE) nuclear facilities. He has held start-up testing, management of reactor operations, and outage management positions at the Vogtle Nuclear Plant. As General Manager of the Trojan Nuclear Plant, he managed the largest and most successful commercial US reactor deactivation and decommissioning (D&D) project to date. He was also D&D Vice President at the Hanford site for three years. Mr Lackey has served on the decommissioning advisory boards of Maine Yankee, Connecticut Yankee, and San Onofre Unit 1, and led an IAEA management mentoring programme for the Chernobyl project. He currently serves on the Institute of Nuclear Power Operations (INPO) Supplier Participant Advisory Committee, and the Nuclear Energy Institute (NEI) Nuclear Strategic Issues Advisory Committee.



Vladan LJUBENOV currently serves in the Waste and Environmental Safety Section of the IAEA, a position he has held since 2009. His work at the IAEA focuses on development and revision of Safety Standards and supporting publications on decommissioning and on missions to assist countries with specific needs in decommissioning. He also serves as Scientific Secretary of the International Decommissioning Network and of numerous international, regional and national projects, including the DRiMa project. Before joining the IAEA, Mr Ljubenov worked for 15 years at a nuclear research institute in Serbia where his scientific work focused on reactor physics, radiation protection and medical applications of radiation. He also managed several projects related to decommissioning and spent fuel management.



Robert MIDDLETON is Head of Nuclear Decommissioning and Radioactive Waste Policy in the UK Department of Business, Energy and Industrial Strategy. He has worked on nuclear liabilities issues for the past 8 years. Initially Mr Middleton led work to develop the UK's waste transfer pricing methodology for higher activity waste, including spent fuel, from new nuclear power stations. He then led the UK Government team that scrutinised the proposed Funded Decommissioning Programme for the proposed Hinkley Point C power station. Mr Middleton's current role covers responsibility for policy issues across the UK's civil nuclear estate.



Andrew OLDHAM joined the Nuclear Decommissioning Authority (NDA) shortly after its inception in 2005. His primary responsibilities within the NDA have been the development of financial reporting and governance, and the derivation and communication of cost estimates for decommissioning for the 17 sites for which the organisation has responsibility. Mr Oldham also serves as Director of the NDA's property management and insurance subsidiary companies, and previously served for five years as Trustee of the NDA sponsored Combined Nuclear Pension Plan.



Geoffrey ROTHWELL is Principal Economist of the OECD Nuclear Energy Agency, where he is currently working on the economics and financing of nuclear facility decommissioning and the economics of extended spent nuclear fuel management. Recent publications include *The Costs of Decommissioning Nuclear Power Plants* and *Economics of Nuclear Power*. After a post-doctoral fellowship at the California Institute of Technology, he taught from 1986 to 2013 as a Senior Lecturer in the Department of Economics, Stanford University, and was the Associate Director of Stanford's Public Policy Program.



Yuki SHIMAZU is a Deputy Director in Japan's Ministry of Economy, Trade and Industry, where he is currently working at the Nuclear Energy Policy Planning Division, Agency for Natural Resources and Energy. He has also worked at the World Bank as a short-term consultant, engaged in the solar-powered irrigation project in Bangladesh. With the two MBA degrees as well as MS in Aerospace Engineering, he has taught Global Business Strategy at a graduate school in Tokyo.



Richard TURTIL is a Senior Financial Analyst in the U.S. Nuclear Regulatory Commission's (NRC) Office of Nuclear Reactor Regulation (NRR), responsible for nuclear reactor decommissioning funding and financial qualification issues, and foreign ownership, control, or domination issues. He has extensive experience in reactor and materials decommissioning, low-level waste management and disposal, nuclear materials security, and uranium recovery issues. As Chief of the Intergovernmental Liaison Branch at NRC, he worked to strengthen collaborative relationships with multiple State, Tribal, International, and other federal agency personnel on various issues including uranium recovery licensing, waste management, and nuclear security.



Pekka ULANDER currently serves as Senior Auditor for the European Court of Auditors. Mr. Ulander has also worked in private sector activities as Export Sales Engineer, Sales Manager, Project Manager and Principal Lecturer. From 2000 to 2007, he was a Nuclear Inspector at Euratom.



Rosalia ZELLER serves as Deputy Risk Coach at the Federal Office of Energy (BFE) where she is responsible for the supervision of the Decommissioning and Waste Disposal Fund. From 2011 to 2014, she worked at the Federal Office of Public Health managing of the financial supervision of health insurance companies. Prior to that, she worked for the Federal Finance Administration first as Deputy Head of Portfolio Management, Federal Pension Fund, and more recently as Supervisor of Budgets of the Offices of the Federal Department of Finance (EFD). She has also worked as an investment consultant with AON Chuard Consulting.

