ESReDA

European Safety, Reliability & Data Association

European Commission

63rd ESReDA Seminar

25-26 October 2023, Ispra, Italy

Programme

European Commission Joint Research Centre (JRC)
Via Enrico Fermi 2749, I-21027 Ispra (VA), Italy

AGENDA

DAY 1. WEDNESDAY 25 OCTOBER

Start	*End*	*Agenda item*
08:00		**Departure from the Hotel* to JRC (organised BUS)**
09:15	**09:30**	**Welcome to the participants (JRC, ESReDA)**
09:30	**10:15**	**PLENARY TALK I. Infrastructure Resilience: State of Science and Practice** Igor Linkov
10:15	*12:00*	**SESSION I. Resilience in the energy sector – part I** Chair: Christophe Bérenguer
10:15	**10:30**	**1. The resilience of the Ukraine's critical energy infrastructure during the war with Russia** Andrii Davydiuk
10:30	**10:45**	**2. On the resilience of the European Union natural gas system** Rebecca Schill, Ricardo Fernández-Blanco, Nuria Rodríguez Gómez, Anca Costescu, Ricardo Bolado Lavín
10:45	**11:15**	**Break**
11:15	**11:30**	**3. Resilience enhancement of gas transmission system by remote control deployment of valves: methodology of indicator analysis and case study** Bogdan Vamanu, Vytis Kopustinskas, Vladislavas Daškevičius and Andrius Dagys
11:30	**11:45**	**4. Application of metaheuristic algorithms for finding strategy of optimal response to natural gas supply disruptions** Ivars Zalitis, Laila Zemite and Aleksandrs Dolgicers
11:45	**12:00**	**5. Hydrogen Electrolysers as a flexible source for the optimal operation of the distribution grid** Irina Oleinikova, Basanta Raj Pokhrel, Marius Rasmussen and Sofie Lorentzen
12:00	**13:15**	**Lunch Break**
13:15	**14:00**	**PLENARY TALK II. Resilience analytical quantitative approaches to classify and rank first principle resilience and risk assessment and simulation options** Ivo Häring
14:00	*15:00*	**SESSION II. Indicators and metrics of resilience in critical infrastructures** Chair: Myrto Konstantinidou
14:00	**14:15**	**6. Risk and resilience-informed decision-making for strategic territorial risk management : from methodologies to practical implementation for infrastructures exposed to mountain natural hazards** Jean-Marc Tacnet, Simon Carladous, Nour Chahrour and Christophe Bérenguer

14:15	**14:30**	**7. Towards a modular co-simulation framework for the assessment of cascading effects among critical infrastructures and the impact on citizens** Till Martini, Julia Rosin, Joanna Zarah Vetter, Stefan Neuhäuser, Eridy Lukau, Faruk Catal, Maurizio Boigk, Maik Simon, Michael Monteforte, Michael Gerold, Windy Phung, Steffen Dietze, Jörg Finger, Patrick Brausewetter and Steffen Nicolai
14:30	**14:45**	**8. Remaining Useful Life of hydraulic steel structures under high-cycle fatigue Presentation of the chair Medelia and preliminary study of a lock gate** Julien Baroth, Vincent Michaud, Rafael Estevez and Arnaud Isaac
14:45	**15:00**	**9. Resilience Metrics for Interdependent Infrastructure Systems: Characterization in full-scale Application** Paolo Trucco and Boris Petrenj
15:00	**15:30**	**Break**
15:30	*16:30*	**SESSION III. Resilience of critical assets and impact on urban infrastructures** Chair: Jean-Marc Tacnet
15:30	**15:45**	**10. A territorial view to the resilience of infrastructures** David Javier Castro Rodriguez, Micaela Demichela
15:45	**16:00**	**11. Use of Multi-Criteria Decision Analysis for assessing the resilience of Critical Entity systems** Frédéric Petit
16:00	**16:15**	**12. Modelling systemic changes in urban systems: a literature review** Katarzyna Goch
16:15	**16:30**	**13. Strengthening the climate resilience of critical assets across Europe: the ICARIA project** Athanasios Sfetsos, Beniamino Russo, Alex de la Cruz, Mattia Leone, Giulio Zuccaro, Barry Evans, Rita Salgado, Maria Adriana Cardoso, Denis Havlik, Marianne Bügelmayer-Blaschek and David Pacheco
17:00		**Departure from JRC to the Hotel* (organised BUS)**
19:00		**Gala dinner at the Hotel***
		End of Day 1

** Dolce Milano Malpensa Hotel*

DAY 2. THURSDAY 26 OCTOBER

Start	*End*	*Agenda item*
08:00		**Departure from the Hotel* to JRC (organised BUS)**
09:15	**09:45**	**PLENARY TALK III. Risk preparedness regulation in the electricity sector: aims and challenges** Marta Poncela Blanco
09:45	*10:30*	**SESSION IV. Resilience in the energy sector – part II** Chair: Laila Zemīte
09:45	**10:00**	**14. Impacts of Climate Change on interdependent Critical Energy Infrastructure: Direct and Cascading Effects across Energy Production, Transport and Demand** Ricardo Tavares da Costa, Elisabeth Krausmann and Marta Poncela
10:00	**10:15**	**15. Fragility assessment of power grid infrastructure towards climate resilience and adaptation** Georgios Karagiannakis, Mathaios Panteli and Sotirios Argyroudis
10:15	**10:30**	**16. Feasibility Study: Improving Low-inertia Power System Resilience by Novel Load Shedding Method Including Control of Synchronous Condensers' Power Injections** Antans Sauhats, Andrejs Utans, Dmitrijs Guzs, Diana Zalostiba, Anna Mutule and Oskars Grigals
10:30	**11:00**	**Break**
11:00	*12:00*	**SESSION V. Resilience in the energy sector - part III** Chair: Saulius Gudžius
11:00	**11:15**	**17. Comparison of resilience assessment methods for distribution power systems subject to seismic events** Nicolas Evenepoel, Florian Sparavier, Pierre Henneaux and Pierre-Etienne Labeau
11:15	**11:30**	**18. An innovative methodology for risk-based resilience assessment to prioritize grid interventions against natural threats in the Italian power system** Emanuele Ciapessoni, Diego Cirio, Andrea Pitto, Silverio Casulli, Giuseppe Berrettoni, Federico Falorni, Francesca Scavo, Greta Magnolia, Francesco Marzullo and Enrico Maria Carlini
11:30	**11:45**	**19. The Resilience Assessment in Electricity sector: How to get started, holistic or segmented view?** Maria Luisa Alberto and Manuela Gaivéo
11:45	**12:00**	**20. Modelling of power disruption scenarios by PyPSA in the Baltic region** Isabel Asensio Bermejo, Hrvoje Foretić, Vytis Kopustinskas
12:00	**13:15**	**Lunch Break**
13:15	*14:00*	**SESSION VI. Resilience of the energy sector by renewable generation** Chair: Pierre-Etienne Labeau
13:15	**13:30**	**21. The Impact of Small Hydro Power Plants on the Adequacy of a Power System with High Penetration of Renewable Energy Sources** Jonas Vaičys, Saulius Gudžius, Audrius Jonaitis and Daivis Virbickas

Start	*End*	*Agenda item*
13:30	**13:45**	**22. Evaluation matrix to select appropriate countermeasures for Offshore Windfarm protection** Babette Tecklenburg, Alexander Gabriel, Arto Niemi and Frank Sill Torres
13:45	**14:00**	**23. Addressing the Risk of Prolonged Periods of Low Renewable Generation in Power Systems Resilient Planning** Ektor-Ioannis Stasinos, Mathaios Panteli and Nikos Hatziargyriou
14:00	**14:20**	**Break**
14:20	*15:20*	**SESSION VII. Resilience of complex systems** Chair: Micaela Demichela
14:20	**14:35**	**24. Assessing risk of water damage to buildings under current and future climates** Ola Haug, Claudio Heinrich-Mertsching and Thordis Thorarinsdottir
14:35	**14:50**	**25. Flood resilience and sustainability in bridge climate adaptation** Stergios Aristoteles Mitoulis and Sotirios Argyroudis
14:50	**15:05**	**26. An Empirical Model for Predicting Landslide Runout Distance in Malaysia** Kwan Ben Sim, Min Lee Lee, Rasa Remenyte-Prescott and Soon Yee Wong
15:05	**15:20**	**27. Complex Systems Resilience to Hybrid Threats** Frédéric Petit, Stefano Ruberto, Monica Cardarilli and Georgios Valsamos
15:20	**15:45**	**Closing of the Seminar**
16:00		**Departure from JRC to the Hotel* and Malpensa Airport (organised BUS)**
		End of Day 2 and Seminar

** Dolce Milano Malpensa Hotel*

PLENARY TALKS: SHORT BIOGRAPHIES OF THE INVITED SPEAKERS

25 October 09:30 – 10:15:

Infrastructure Resilience: State of Science and Practice

IGOR LINKOV

Dr. Igor Linkov

Dr. Igor Linkov is Senior Science and Technology Manager with the US Army Engineer Research and Development Center (ERDC), and Adjunct Professor with Carnegie Mellon University. He is responsible for ERDC's project portfolio in the areas of crises mitigation and resilience. He develops methods and tools for measuring resilience in interconnected network and applies these tools to critical infrastructure, transportation, energy and cyber systems, supply chains as well as command and control systems. He is Army representative at the White House Networking and Information Technology Research and Development (NITRD) Program. He has published widely on environmental and technology policy, climate change, and risk and resilience analytics, including twenty five books and over 500 peer-reviewed papers and book chapters in top journals, like Nature, Nature Nanotechnology, Nature Climate Change, among others. Dr. Linkov is Elected Fellow with the American Association for the Advancement of Science (AAAS) and Society for Risk Analysis. Dr. Linkov has received multiple USACE, Army and DOD Awards and Civilian Service medals, including the highest Civilian Award in the US Army and 2023 Army's Humanitarian Assistance Medal, as well 2020 DOD Top Scientist Award. He received multiple awards from the Society for Risk Analysis (SRA), 2022 Edgeworth-Pareto Award from the International Society for Multi Criteria Decision Making (MCDM), 2022 IDRiM Distinguished Research Award, and 2021 Arthur Flemming Award for outstanding public service.

25 October 13:15 – 14:00:

Resilience analytical quantitative approaches to classify and rank first principle resilience and risk assessment and simulation options

IVO HÄRING

Dr. Ivo Häring

Dr. Ivo Häring gained his doctorate at Max-Planck-Institute for the Physics of Complex Systems (MPIPKS) and TU Dresden. Since 2004 he works at Fraunhofer Ernst-Mach-Institute (EMI), currently as Senior Scientist in the Department Safety and Resilience of Technical Systems. He lectures for the master courses Risk Engineering at Furtwangen University of Applied Science (HFU) and Sustainable Systems Engineering at the corresponding department INATECH of the Faculty of Engineering of the University of Freiburg. Research projects (set up) and corresponding publication record cover in 2023 25 million Euro research funding. Domains of interest include analysis of event probabilities and susceptibility, of hazards and damage, vulnerability, risks and resilience of socio-technical systems. Furthermore, concepts of technical risk and resilience analysis, engineering and management, functional safety analysis and related methods, in particular when applied to new domains, e.g. autonomous driving. Sample projects include EU projects in critical infrastructure resilience domain covering electricity (eFORT), gas networks and Storage (SecureGas, EDEN), telecommunication (RESISTO), transport (TRESSPASS, XP-DITE), and urban infrastructure (EDEN, D-BOX, ENCOUNTER, VITRUV), countering of large-scale fires (AF3), as well as projects covering several CIs (RESILIENS, SnowBall). He (co-)authored 2 books, 24 articles, 68 conference papers and 7 book chapters.

26 October 09:15 – 09:45:

Risk preparedness regulation in the electricity sector: aims and challenges

MARTA PONCELA BLANCO

Dr. Marta Poncela Blanco

Marta Poncela studied MSc electrical engineering at the University of Valladolid where she also obtained a PhD in information and telecommunication technologies. Currently she is policy officer at the European Commission, Directorate General for Energy, Energy Security and Safety unit. Previously she worked at the the European Commission, DG Joint Research Centre for 9 years, in the Energy Security, Distribution and Markets Unit doing research for policy support on risk preparedness for the electricity sector, resource adequacy, smart grid laboratories and projects of common interest among other topics. Before joining the European Commission, she was for more than 10 years the responsible of the energy division at Cartif technology center in Spain working on energy efficiency, renewable energy and hydrogen.

Her research areas include risk assessment for the electricity sector, resource adequacy and integration of renewable energies into the grid. She is an expert in modelling, forecasting techniques and statistical analysis applied to the energy system. She has worked in several R&D projects in the energy sector, and she is author of several reports, book chapters and scientific papers.

ABOUT THE SEMINAR

A. SEMINAR ORGANISATION

The Seminar is jointly organised by ESReDA and JRC.

B. LOCATION

European Commission Joint Research Centre (JRC)

Via Enrico Fermi 2749, I-21027 Ispra (VA), Italy

C. CHAIRPERSON OF THE SEMINAR

Kristine VLAGSMA (European Commission, Joint Research Centre)

D. TECHNICAL PROGRAMME COMMITTEE (TPC)

John ANDREWS, University of Nottingham, UK

Florent ARRIGNON, MAD-Environment, France

Anne BARROS, CentraleSupélec, France

Julien BAROTH, University of Grenoble, France

Christophe BÉRENGUER, University of Grenoble, France

Marko ČEPIN, University of Ljubljana, Slovenia

Nicolas DECHY, IRSN, France

Sebastien DELMOTTE, MAD-Environment, France

Mohamed EID, RiskLyse, France

Gianluca FULLI, JRC Directorate C – Energy, Mobility and Climate, Italy

Antonio J. GUILLÉN, Ingeman, Spain

Saulius GUDŽIUS, Kaunas University of Technology, Lithuania

Rainer JUNGWIRTH, JRC Directorate E – Space, Security and Migration, Italy

*Vytis KOPUSTINSKAS, JRC Directorate C – Energy, Mobility and Climate, Italy

Elisabeth KRAUSMANN, JRC Directorate E – Space, Security and Migration, Italy

Pierre-Etienne LABEAU, Université libre de Bruxelles, Belgium

Andre LANNOY, IMdR, France

Marcelo MASERA, Politecnico di Torino, Italy

Tomasz NOWAKOWSKI, Wroclaw University of Science and Technology, Poland

Rasa REMENYTĖ-PRESCOTT, University of Nottingham, United Kingdom

Sigitas RIMKEVIČIUS, Lithuanian Energy Institute, Lithuania

Antonio Jesus SANCHEZ HERGUEDAS, University of Seville, Spain

Giovanni SANSAVINI, ETH Zürich, Switzerland

John STOOP, Kindunos, Netherlands

Jean-Marc TACNET, University of Grenoble, France

Agnieszka TUBIS, Wroclaw University of Science and Technology, Poland

Bogdan VAMANU, 'Horia Hulubei' National Institute of Physics and Nuclear Engineering, Romania

Laila ZEMITE, Riga Technical University, Latvia

**Technical Programme Committee chairperson*

E. LOCAL ORGANISATION COMMITTEE

Virginie PETITJEAN (JRC Directorate C – Energy, Mobility and Climate, Netherlands)

Isabel ASENSIO (JRC Directorate C – Energy, Mobility and Climate, Italy)

Hrvoje FORETIĆ (JRC Directorate C – Energy, Mobility and Climate, Netherlands)

Vytis KOPUSTINSKAS (JRC Directorate C – Energy, Mobility and Climate, Italy)

F. SCOPE OF THE SEMINAR

Research in resilience of infrastructure systems has been constantly increasing during the last decade and is expected to grow further. Although the term resilience was used in material science already in 19th century, the current meaning of system resilience originates from research in ecology back in 70s. Self-repairable computer systems, being developed also in the same decade for space and defence applications, could be considered as examples of resilience applications in engineering. Resilience applications in technical systems domain have evolved most significantly during the last two decades and the term resilience has already been transferred to the policy domain, as the Directive on the Resilience of Critical Entities

(CER Directive) went into force in January 2023 and replaced the Critical Infrastructure Directive, published in 2008.

Two fundamental points in resilience domain to be addressed by the Seminar are:

- The methodological development of resilience assessment from a conceptual framework to modelling approaches.
- The metrics for resilience assessment and development of quantitative tools for decision-making.

The 63rd ESReDA seminar will be a forum for exploring these points and other related questions. We aim to discuss theories, concepts, and experiences of resilience assessment methodologies and applications. Authors are invited to present their proposals and discuss successes and/or failures and to identify future needs in resilience research. We want to encourage new ideas, scientific papers, conceptual papers, case studies and cross-sectoral research on this topic with examples and applications of infrastructures exposed to both technological and natural threats, hazards. This seminar will bring together researchers, practitioners and decision-makers.

G. TARGET GROUPS AND DOMAINS OF APPLICATION (EXAMPLES)

Papers for the seminar are welcome from various stakeholders (industry, academia, R&D consultancy organisations) and could address different infrastructure sectors:

- Energy sector (electricity, gas, hydrogen)
- Transport sector (rail, road, air and maritime)
- Other Critical infrastructures, networks and entities
- Urban development
- Public sector and government

This seminar is aimed at addressing resilience due to different hazards and threats, such as:

- Disruptions of infrastructures due to aging or random failures,
- Natural disasters,
- Intentional attacks or man-made hazards,
- Emerging threats (e.g. hybrid).

Interdependencies of infrastructures and cascading effects are also among the topics of the Seminar. It integrates as well technical, human, organizational, social, financial dimensions. Other topics may be included if they fit well within the topic on resilience assessment.

ABOUT THE ORGANISERS

A. EUROPEAN COMMISSION – JOINT RESEARCH CENTRE (JRC)

The Joint Research Centre (JRC) is one of Directorate-Generals of the European Commission (the Commission). It plays a key role at multiple stages of the EU policy cycle. It contributes to the overall objective of Horizon Europe. JRC works closely with research and policy organisations in the Member States, with the European institutions and agencies, and with scientific partners in Europe and internationally, including within the United Nations system. In addition, the JRC offers scientific expertise and competences from a very wide range of disciplines in support of almost all EU policy areas.

A.1. Impact of JRC in the System Resilience and Security of Supply

Energy security occupies a prominent place in most of the EU's energy policy action areas:

- The Commission collaborates with relevant energy expert groups to ensure access to energy, risk preparedness and cross-border coordination.
- As part of the 'Clean energy for all Europeans' package, the Regulation on risk-preparedness in the electricity sector requires all EU countries to cooperate to ensure that, in electricity crisis, electricity goes where it is most needed.
- Energy security requires adequate protection of critical infrastructure, in particular against cyberattacks.
- The EU internal energy market is expected to be integrated and resilient; the promotion of energy efficiency and domestic energy production would foster the reduction of energy import dependency.

A.2. Unit C.3 – Energy Security, Distribution and Markets

In line with the mission of the JRC, the aim of the JRC's Energy, Mobility & Climate Directorate C is to provide scientific and technical support for the conception, development, implementation and monitoring of community policies related to energy, transport and climate.

Unit C.3 is a multidisciplinary and multicultural team of JRC researchers – based in Petten (NL), Ispra (IT) and Seville (ES) – acting as in-house scientific consultants for EU policy-making on the on-going transformations of smart electricity systems.

A compilation of the Unit's activities and products in the field of System Resilience and Security of Supply is listed below:

- The Unit is supporting the conception and implementation of the power system risk preparedness Regulation. By proposing EU-wide rules to follow in case of crises, the Commission intends to bolster regional cooperation and assistance among Member States. This approach can be less costly, more secure and strengthen the functioning of electricity market.

- They study how the electricity security decision-analytic framework is currently structured and can potentially evolve. More information on our understanding of electricity security is available here.
- In support of EU efforts to protect critical infrastructures, they develop methods and tools for international cyber security exercises, they assess the power system resilience and recovery performances after adverse events such as cyber-attacks, extreme weather events etc.
- They perform studies on the societal appreciation of energy security.

B. ESREDA

European Safety, Reliability & Data Association (ESReDA) is a European Association established in 1992 to promote research, application and training in Reliability, Availability, Maintainability and Safety (RAMS). The Association provides a forum for the exchange of information, data and current research in Safety and Reliability. The contents of ESReDA seminar proceedings do not necessarily reflect the position of ESReDA. They are the sole responsibility of the authors concerned. ESReDA seminar's proceedings are designed for free public distribution. Reproduction is authorized provided the source is acknowledged.

ESReDA membership is open to organisations, privates or governmental institutes, industry researchers and consultants, who are active in the field of Safety and Reliability. Membership fees are currently 1000 EURO for organisations and 500 EURO for universities and individual members. Special sponsoring or associate membership is also available.

For more information and available ESReDA proceedings please consult http://www.esreda.org/

B.1. ESReDA project group on Resilience Assessment of Critical Infrastructure

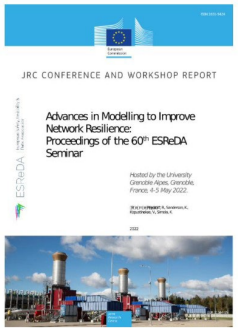
ESReDA is currently running a new project group (PG) on Resilience Assessment of Critical Infrastructure, approved by the General Assembly of ESReDA during the meeting in April 2023. This project group (PG) continues the work done in the previous ESReDA project group "Resilience Engineering and Modelling of Networked Infrastructure" during 2018-2021 years.

The aim of the PG is to develop and propose an integrated approach for quantitative resilience assessment including management decisions (comparison of solutions for investment, maintenance) in a context of uncertain scenarios (global change and emerging threats).

This Seminar will serve as a forum to discuss the work of the project group, exchange ideas and set a work plan for the next years. A dedicated project group meeting is planned on October 24, the day before the Seminar. The Seminar participants are welcome to join the meeting either as PG members or observers.

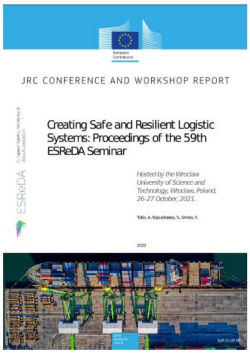
Advances in modelling to improve network resilience: Proceedings of the 60th ESReDA seminar

4-5 May 2022,
University Grenoble Alpes,
Grenoble, France.



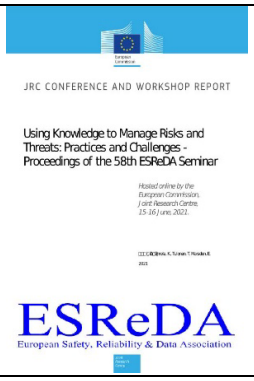
Creating safe and resilient logistic systems: Proceedings of the 59th ESReDA seminar

26-27 October 2021,
Wrocław University of Science and Technology,
Wrocław, Poland.



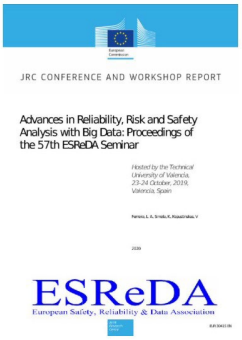
Using Knowledge to Manage Risks and Threats: Proceedings of the 58th ESReDA Seminar

15-16 June 2021,
Joint Research Centre,
Petten, Netherlands.



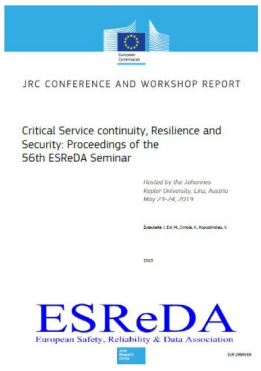
Advances in Reliability, Risk and Safety Analysis with Big Data: Proceedings of the 57th ESReDA Seminar

23-24 October 2019,
Technical University of Valencia,
Valencia, Spain.



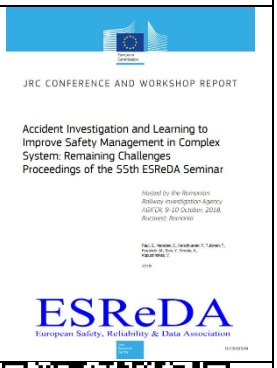
Critical Services continuity, Resilience and Security: Proceedings of the 56th ESReDA Seminar

23-24 May 2019,
Johannes Kepler University,
Linz, Austria.



Accident Investigation and Learning to Improve Safety Management in Complex System: Remaining Challenges: Proceedings of the 55th ESReDA Seminar

9-10 October 2018,
Romanian Railway Investigation Agency AGIFER,
Bucharest, Romania.



ESReDA membership application form

European Safety, Reliability & Data Association

The undersigned,

Society name
Juridical form
H. Quarter Address

Represented by,

Principal Contact

Title (Mrs., Mr., Dr., …)
Name, 1st name
Full address

E-mail
Phone
Fax

Alternative Contact

Title (Mrs., Mr., Dr., …)
Name, 1st name
Full address

E-mail
Phone
Fax

Applies for ESReDA full membership*/sponsoring membership/associate membership (*choose only one*). Through this demand, our society is accepting and committed to respect the terms of the ESReDA Statutes**. (*Please, provide on separate sheets the CV's of the applicant society and the representing person*).

Date Signature

* *Membership annual fee is 1000 Euros/ year for private companies and 500 Euros/ year for Universities, research institute and governmental organizations.*
** *An English version of the statutes is joined with the Membership Application Form*

Application materials to be sent to any of ESReDA Directors, or to ESReDA General Secretariat:

Antonio J. Guillén
INGEMAN, Asociación para el Desarrollo de la Ingeniería del Mantenimiento
Escuela Superior de Ingenieros,
Camino de los Descubrimientos s/n-41092, Sevilla
SPAIN
Email: ajguillen@us.es
Mob: +34654152067

ESReDA Membership Application Procedure

The ESReDA procedure for membership is the following:

- The candidate should send the membership application form (MAF) to any of ESReDA Active Members (preferably to the President, the General Secretary, the Treasurer or any of the Directors Board Members, see list below).
- A brief description (CV) of the applicant society/association/institute should be joined to the MAF.
- A brief description of the professional history of the contact officer (representing person) should be joined to the application, as well.
- The demand will be presented to the nearest Directors Board for examination and the 1st approval.
- If the demand receives the Directors' approval, it will be presented to the nearest ESReDA General Assembly for voting, (art.6, ESReDA Statutes, below).
- Accepted members will be notified within the following 4 weeks (from the approval date by the ESReDA GA).

A copy of the statutes is joined (English version). The French version of the statutes is the official one. ESReDA Association is declared under the control of the Belgium Law.

ESReDA Board of Directors (BoD)

Elected in May 2022 for 2 years

President	Mohamed Eid	RiskLyse (France)
Vice President	Claude Degrave	ESReDA (France)
General Secretary	Antonio J. Guillén	Ingeman (Spain)
Treasurer	Micaela Demichela	Politecnico di Torino (Italy)
Members	Nicolas Dechy	IRSN (France)
	Siegfried Eisinger	DNV (NO)
	Karol Kowal	NCBJ (PL)
	Kaisa Simola	EC JRC (NL)
	John Stoop	Kindunos (NL)
	Inga Šarūnienė	Lithuanian Energy Institute (LT)
	Agnieszka Tubis	Wroclaw University of Science and Technology (PL)

Membership

Article 4: Categories of Members

The Association consists of:

1° Effective Members

Effective Members are subsequently referred to as "Effective Members". Effective Members are legal entity or individuals. They have the right to vote and are eligible for the various functions of the Association.
They pay an annual membership fee or render services, conform with the internal rules, to the Association.

2° Associate membership

The Associate Members can be legal entity or individuals. They participate to the project groups and are invited to join the General Assembly as mere observers. They are not entitled to voting rights and are not eligible.

3° Sponsoring membership

The Sponsoring Members can be legal entity or individuals. Sponsoring Members are expected to contribute to the funds of the Association with free services or assets. They may attend General Assembly as mere observers. They are not entitled to voting rights and are not eligible.

4° Honorary membership

These members are individuals. They have rendered or actually render particular services to the Association. Honorary members are invited to the meetings of the general Assembly and of the board of directors as mere observers.
All members are subsequently referred to as "Members".

Article 5: Commitments of the Members

Each Member commits itself to:

- promote the objectives of the Association;
- agree with definitions and procedures aiming at the exchange of information and experiences concerning Safety & Reliability and data;
- take a fair share in the activities of The Association and attend meetings;
- respect the provisions of these statutes and the ones contained in the internal rules;

Article 6: Admission of Members

1° To become Effective Member, an written application, mentioning the motivations of such application and including the commitment to respect the statutes of the Association. The candidate will admitted as Effective Member by decision of the General Assembly. The official applications rejected by the Assembly may be resubmitted six months after the date of rejection at the earliest.

2° To become Associate, Sponsoring or honorary Member, a written application must be submitted to the board of directors or can be proposed by a Member. The General Assembly decides upon their admission. The official applications rejected by the Assembly may be resubmitted six months after the date of rejection at the earliest.

Article 9: Membership fee

The amount of the annual membership fee paid by the Effective Members shall be fixed annually by the General Assembly in accordance with the proposal of the board of directors, not later than each May of each year, to apply for the following calendar year. If a decision was not made in time, the amount of the membership fee is renewed for the following year.

The annual membership fee will be due by Members who have asked voluntary resignation or for the ones excluded, for the year when such voluntary resignation or exclusion takes place.