Economic and Social Considerations for the Future of Nuclear Energy in Society

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Deliverable 4.2: Data Management Plan

Work Package 4

Lead Beneficiary: EIMV

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Contents

Glossary

AB – Advisory Board

CC – Coordination Committee

CSA - Coordination and Support Actions

CS – civil society

D – deliverable

DOI - Digital Object Identifier

DMP – Data Management Plan

ECOSENS - Economic and Social Considerations for the Future of Nuclear Energy in Society

ENSREG - European Nuclear Safety Regulators Group

EP - Exploitation Plan

FAIR – Findable, Accessible, Interoperable, Reusable

GDPR – General Data Protection Regulation

Gen – generation

HERCA - Heads of Radiation Protection Authorities

IAEA – International Atomic Energy Agency

IEA – International Energy Agency

IGDTP - Implementing Geological Disposal of radioactive waste Technology Platform

IRENA – International Renewable Energy Agency

MB - megabyte

NGOs – Non-Governmental Organisations

OECD/NEA - Organisation for Economic Co-operation and Development / Nuclear Energy Agency

ORD – Open Research Data

PRISMA - Preferred Reporting Items for Systematic Review and Meta-Analysis

SHARE – Social sciences and HumAnities in ionizing radiation Research

SITEX Network - Sustainable network for Independent Technical EXpertise on radioactive waste management Network

SNETP - Sustainable Nuclear Energy Technology Platform

SMRs - Small Modular Reactors

SoP - System of Provision

SSH – Social Science and Humanities

WP(s) – Work Package(s)

WPLs – Work Package Leaders

Executive Summary

ECOSENS project (Economic and Social Considerations for the Future of Nuclear Energy in Society) is a Coordination and Support Action (CSA) focused on analyses of citizens' views and risk perceptions, benefits and potentials of current and new nuclear technologies in the context of major societal challenges (climate crisis, sustainable energy policies, energy security). Activities in ECOSENS will review through a socio-ethical lens the uptake of recommendations on stakeholder engagement and transdisciplinarity (notably integration of social sciences and humanities) in nuclear research and decision making, developing recommendations to overcome challenges. Different stakeholders are going to be engaged to explore and co-construct possible energy futures and the role of nuclear energy therein.

Three main Work Packages (WPs) are foreseen to fulfil the goals of ECOSENS: WP1 "A collaborative assessment of (imagined) energy worlds" groups all activities dedicated to social investigations, WP2 "Assessment of the sustainability of the whole cycle of nuclear power" evaluates possible development of the energy market (demand, structure, rules, etc), in the frame of the climate neutrality proposed for mid-century, WP3 "A System of Provision approach for nuclear power" addresses the newly developed economic model to multiple case studies in different European countries with different nuclear energy programmes and strategies. These three WPs will also collect and generate most of the data. WP4 and WP5 are devoted respectively to communication, dissemination and exploitation of results, and management and coordination.

This deliverable D4.2 "Data Management Plan" gives an overall approach to the production, collection and processing of data generated in ECOSENS. This Data Management Plan fulfils the requirement of the Open Research Data (ORD pilot) and was created using the Digital Curation Centre's DMP online tool, based on the "Horizon Europe DMP" template provided by European Commission ("Horizon Europe"). ECOSENS is a CSA project with no new research data, however it employs other methods and approaches resulting in the variety of data types and content.

In this plan we address the issues of making ECOSENS data findable, accessible, interoperable and re-usable (FAIR), together with data management, security, and regulatory and ethical issues. ECOSENS is committed to sharing as much primary and derivative data and investigation outputs as possible. All deliverables are public and published on ECOSENS website: https://www.ecosens-project.eu/. Green open access at the website project online repository will be used and also gold open access for limited number of publications. According to the plans the approach as in Open Research Europe portal (https://open-research-europe.ec.europa.eu) for publishing scientific articles of the project will be used. In addition, the European Data Portal (https://data.europa.eu/en) will be used to share the collected or generated data, if possible.

This deliverable represents the detailed Data Management Plan which will be revised every year of the project in the light of changes in data generation and outputs, and will act as the schedule against which sharing will be checked and validated.

1 Data summary

1.1 Purpose of the data collection/generation

ECOSENS project (Economic and Social Considerations for the Future of Nuclear Energy in Society) is a Coordination and Support Action (CSA) [1] is focused on analyses of citizens' views and risk perceptions, benefits and potentials of current and new nuclear technologies in the context of major societal challenges (climate crisis, sustainable energy policies, energy security). Activities in ECOSENS will review through a socio-ethical lens the uptake of recommendations on stakeholder engagement and transdisciplinarity (notably integration of social sciences and humanities) in nuclear research and decision making, developing recommendations to overcome challenges. Different stakeholders are going to be engaged to explore and co-construct possible energy futures and the role of nuclear energy therein.

Sustainability assessment of current and new nuclear energy technologies will take into account the entire life of the nuclear investment including the nuclear fuel cycle, so from uranium extraction, production of fuel, nuclear facilities construction and operation, to management of radioactive waste including decommissioning. Integration of new technologies (Gen III+, IV, SMR) will be explored in the context of the future energy market and societal developments to identify the possible roles of nuclear energy in the climate neutral economy targeted for 2050. Multiple perspectives (nuclear experts, social scientist, other stakeholders and society) will be integrated and methodological recommendations for sustainability assessment will be agreed. To address the weaknesses of existing economic models, in ECOSENS a novel model based on the system of provision approach will be developed in order to create and calculate indicators relevant for various stakeholders (consumers, governments, suppliers). The model will include the "social discount rate" and considers the limits of our planet, as reflected in the "circular economy" system. A series of national case studies will evaluate the model and provide relevant recommendations to stakeholders.

Three main WPs are foreseen to fulfil the goals of ECOSENS: WP1 "*A collaborative assessment of (imagined) energy worlds*" groups all activities dedicated to social investigations, WP2 "*Assessment of the sustainability of the whole cycle of nuclear power*" evaluates possible development of the energy market (demand, structure, rules, etc), in the frame of the climate neutrality proposed for mid-century, WP3 "*A System of Provision approach for nuclear power*" addresses the newly developed economic model to multiple case studies in different European countries with different nuclear energy programmes and strategies. These three WPs will also collect and generate most of the data. In addition, in WP 4 on communication, dissemination and exploitation of results will be used to provide dissemination and sharing of the collected data.

All 12 partners involved in the ECOSENS will be included in some way in the data collection and generation of the data coming from 8 EU member states and UK.

1.2 Relation to the objectives of the project

ECOSENS aims to create a neutral space where specialists in social sciences (including economics, sociology, Science and Technology Studies, among others) and humanities and in nuclear energy research and policy will meet, exchange views and collaborate with civil society and other relevant stakeholders in order to:

- Provide a societal perspective on the development and use of existing and new nuclear technologies, in the context of major societal challenges: climate crisis, sustainable

development and energy security, by opening up the technoscientific issues to the social, political, cultural and ethical context, in order to guide policies in the nuclear field.
- Provide an assessment of nuclear energy sustainability considering the entire life cycle of the current nuclear technologies, possible evolutions of the energy markets and nuclear technologies in the transition toward climate neutrality, and the societal perspective in order to reveal and evaluate the possible roles of nuclear power in the future;
- Provide a radically new economic model, based on the System of Provision (SoP), for the assessment of nuclear energy, overcoming the key weaknesses of existing economic models, providing a suite of indicators relevant not just for the investors (e.g. equity holders) but for a broad variety of stakeholders (e.g. consumers, governments, suppliers).

Data collected and generated in the frame of ECOSENS will enable the project's objectives to be achieved. In the frame of ECOSENS we will review the previously developed documents (like recommendations, studies, scientific papers, existing results from surveys …), perform opinion polls, group and individual interviews, analyse case studies in the national context based on available data and interviews with stakeholder, get feedback from workshops with different stakeholders and other events. In all these activities we will collect, reuse and generate data which will be also presented in the project deliverables.

1.3 Types and formats of data generated/collected

ECOSENS is a CSA devoted to socio economic analyses of potential future nuclear energy development and will basically develop very regular types of data in formats that can be handled with available office software. There will be much data collected and generated as spreadsheets, either excel files or other formats (XLS and XLSX), word documents (DOC or DOCX), converted to PDFs (Portable Document Format), images using most standard image file formats (JPG - Joint Photographic Group, TIF- Tagged Image File, PNG- Portable networks graphic), video files (like MP4 - Moving Picture layer four). These file types are specified on a task-by-task basis in Appendix A.

1.4 Re-use of existing data

The ECOSENS project will produce mostly its own data based on presented approach for all different WPs. Only Task 1.2 "*Impact of new social movements and interest groups on attitudes towards energy matters and towards nuclear energy in particular*" will reuse the existing data. It will mainly use existing data on street demonstrations related to nuclear energy or broader environmental issues (e.g. climate crisis) in Belgium, the Netherlands, Sweden, Switzerland, Germany, UK. It is foreseen to reuse the restricted dataset "Caught in the act of protest: CCC-project" which has been deposited by T. Gaidyte in the Dutch data archive DANS (https://dans.knaw.nl/en/data-stations/social-sciences-and-humanities/). The lead partner for this task has been granted permission to reuse of data, but does not have permission to make this data publicly available. Later, based on their analysis, additional data related to climate crises protests collected by other individual researchers will be asked if needed. This will be reported in the updated versions of the DMP.

1.5 Origin of the data

New data will be collected within the project from:

- systematic literature review (according to the PRISMA protocol) of relevant social science research on social determinants of attitudes towards nuclear energy and ethical considerations, in the context of sustainability, climate change and energy security;

- case studies with mixed data collection methods, such as analyses of available governmental portals and media records, focus groups and interviews (in BE, ES, CZ, SK, SI, UK) addressing perceptions and views of current and new nuclear energy technologies (such as small modular reactors);
- representative public opinion surveys will also be conducted in BE, CZ and ES, countries with different nuclear policies;
- face to face and online workshops with representatives of organized municipalities, NGOs and other stakeholders (summaries, still anonymized, if without consent to be published);
- different methods for investigation of protests and anti-nuclear demonstrations with use of observations and interviews with selected groups (e.g. climate activists, ecomodernists),
- discourse analysis of documentary sources (like websites, papers, reports, newspaper articles);
- analysis of the uptake and impact of stakeholder engagement recommendations in the nuclear field from existing literature;
- online survey with stakeholders to analyse the uptake in the nuclear field of recommendations on stakeholder engagement and transdisciplinary collaborations in energy governance;
- in-depth case studies (SI, BE, SK, ES, UK, RO) addressing stakeholder engagement, as well as the salience and politicization of the nuclear energy issue in countries with varying nuclear policies (e.g. phase-out, new-built) using different portals, media data and in-depth interviews with national stakeholders;
- literature review together with an investigation on the current methodologies used for sustainability assessment by various international organisations;
- peer-reviewed scientific literature on System of Provisions (SoP) and relevant examples in industrial sectors including both energy and other applications (automotive, etc.);
- multiple case studies in Europe of the novel economic model in target countries with different nuclear scenarios and description of future role of nuclear energy based on application of the SoP model relying on desk review and interviews with relevant stakeholders;
- novel ECOSENS full costs assessment model based on the SoP approach, its application and findings as report and also as YouTube video.

All collected and generated data will rely on all mentioned methods analysing available literature, existing web-based documents, specially designed and implemented exchanges with stakeholders and will deduct outcomes from such investigation.

1.6 State the expected size of the data (if known)

We estimate that the project will generate around 420 MB or more of data over the lifetime of the project with a small balance towards the early years. File sizes run from small text and spreadsheet files to bigger files, the biggest foreseen as 200 MB video file in MP4 format. This includes new data collected for the project and also the outcomes from review of different documents. All data developed in the ECOSENS will be public, however the information was already received that some of reused data will not be allowed to be publicly available.

1.7 Data utility: to whom will it be useful

In ECOSENS project, the stakeholders important and interesting for outputs have been identified in the Strategy and plan for communication, dissemination and exploitation of results [2]. The identified stakeholders have been grouped in networks based on their interests and needs to be actively involved in the project's activities. The following network groups are defined:

- **Scientific community and researchers**: ECOSENS community, young researchers, related research platforms (like SNETP, IGDTP, SITEX Network, SHARE), associations IAEA, NEA/OECD, IEA, IRENA ….

- **Authorities:** EC and its Directorates, regulators (ENSREG, HERCA, …), responsible ministries (energy, environment, climate changes, …), regulatory authorities, municipalities and implementing authorities,
- **Policy makers**: decision makers and politicians at local, national and European level,
- **Business:** nuclear, renewable and other energy sectors,
- **Related:** similar past and going projects and programmes,
- **Civil society organisations** (NGOs, like NTW and related, working in the nuclear field, Local Committees established at nuclear facilities, GMF, …),
- **Media** and
- **General public**.

The identified stakeholders cover the whole cycle of communication, dissemination activities and exploitation of results. The consortium partners will produce the scientific and technical outputs, interact with stakeholders and spread the results to the wider scientific community, responsible authorities, decision makers and operational bodies at different levels. The target audiences, like civil society organisations, researchers, citizens, international organisation representative and others will be involved in many activities to obtain feedback on the outputs. The media will be used as a broadcast source for all involved, including general public. All these stakeholders will be identified so as to cover a wide variety of levels: from the municipal and national to the European, pan-European and international level. All these levels are important to be reached as the impacts of ECOSENS outcomes will be amplified.

2 FAIR (Findable, Accessible, Interoperable, Reusable) data

2.1 Making data findable, including provisions for metadata

To make data and metadata findable, it is essential to assign persistent identifiers to datasets. These identifiers, such as Digital Object Identifiers (DOIs), provide a unique and permanent reference to the data. Data and metadata in ECOSENS will be deposited in several repositories including ECOSENS website (https://ecosens-project.eu/), but also stores at the partners' institutes. According to the plans the approach as in Open Research Europe portal (https://open-research-europe.ec.europa.eu) for publishing scientific articles of the project will be used, in addition to European Data Portal (https://data.europa.eu/en) if applicable (there is first information, that such service can be used only by official national authorities). Some of these, but not all, are publicly available in the sense of FAIR. Findable data should be easy for both humans and machines to find.

To achieve findable data, the ECOSENS project will implement:

- All datasets will be deposited into a recognised data repository, such as ECOSENS website repository, partners repositories, repositories advised on Open Research Europe portal and potentially European Data Portal.
- (Meta)data collected and generated in ECOSENS will be assigned a globally unique and persistent identifier - Digital Object Identifier (DOI). The DOI will be given for all publicly available deliverables, this would include also data from milestones as they will feed the deliverables.
- All data will be described with rich metadata contextual information in an open file format[1] which will allow to apply an open license, which will be CC02, CC-BY 4.03 or equivalent.

[1] http://opendatahandbook.org/guide/en/appendices/file-formats/#open-file-formats
[2] https://creativecommons.org/share-your-work/public-domain/cc0/
[3] https://creativecommons.org/licenses/by/4.0/

2.2 Making data openly accessible

Accessibility involves ensuring that research data can be accessed and obtained by both humans and machines. Data access in ECOSENS will be provided through various means, such as open data repositories and institutional repositories, controlled access platforms.

Accessible data requires that all data are retrievable by their identifier using a standardized communications protocol, which are open, free, and universally implementable. The protocol will allow for an authentication and authorization procedure, where necessary.

In ECOSENS the accessible data will be assured by:

- Deposition of collected/generated dataset into a recognized data repository which uses standard communications protocols like http://.
- Ensuring that the data repository gives continued access to metadata even when datasets are removed.

2.3 Making data interoperable

Interoperability of data ensures that different datasets can be integrated and combined to derive new insights. Interoperable data refers to data that can be compared and combined with data from different sources, by both humans and machines. For all data in ECOSENS the format as given in Appendix A will be used. These formats are typical for social science and economy studies used in different studies.

In ECOSENS the interoperable data will be achieved by:

- Applying standards[4] used in social science and economy studies that apply to data generated.
- Ensuring that the data repository allows to include links or references to other related data.
- Using open, non-proprietary file formats for the data.

2.4 Increase data re-use (through clarifying licenses)

Reusability is a fundamental principle of FAIR data. Data should be well-documented, providing detailed information on how it was collected, processed, and transformed. This documentation ensures that others can understand and reproduce the research findings based on the data.

The data re-use in ECOSENS will be achieved by:

- Adding as much contextual information (metadata) as possible when depositing the dataset into a repository.
- Applying an open license to the data, preferably CC0 or CC-BY 4.0.
- Checking similar standards that apply to generated data types and using them.

[4] Data standards help to align with commonly used data sharing practices in the field, for example how the data should be structured, formatted and annotated.

3 Allocation of resources

3.1 Costs for making data FAIR

Costs related to general data management are expected to be limited and will be covered by beneficiaries' budget outside of the project. In most cases institutions services and support for implementation of local data management policies are part of the indirect costs claimed by beneficiaries. The WPLs who will be responsible for data management at the WP level are institutions that have strong IT-supported processes and also have data management certificates as part of their quality management system.

Project coordinator has the overall responsibility for the main on-line repository of publicly available outputs on the ECOSENS website. The budget to manage the website content continuously and on time is part of the resources inside the ECOSENS project. In addition, resources for gold open access for a limited number of papers published in the open assess journals are foreseen in the project. In fact, part of the deliverables will be journal papers. The articles will be published in peer-reviewed journals (such as Progress in Nuclear Energy, Energy Policy, Journal of Nuclear Research and Development, etc.), and adequate resources being allocated in the budget to ensure open access. In addition to their publication on the ECOSENS project website https://ecosens-project.eu/, the deliverables and the scientific articles of the project will also be published on the Open Research Europe portal ((https://open-research-europe.ec.europa.eu) using the most appropriate gateways (Science with and for Society, Societal Challenges).

European Data Portal (https://data.europa.eu/en), a pan-European repository of public sector information open for reuse in the EU has been identified as a trusted repository for data, information and project outputs to be made available for reproducibility or reuse.

3.2 Responsibilities for data management in your project

The responsibility for data management rests with the Work Package leaders. They have appointed individual data responsible for their WP tasks in a pattern dependent on the type of task and its location. Responsible researchers, familiar through their current activity with data management, can provide support to others involved in these tasks. They have individual training in data submission support and principles of FAIR data.

EIMV is responsible for maintaining the DMP, in collaboration with the WPLs.

3.3 Costs and potential value of long-term preservation

Costs for the long-term preservation of data will not occur. After the end of project, the results of ECOSENS project will be transferred to the coordinator's website where they will be available for a longer period. Main results will be available also at the EU research repository CORDIS (Community Research and Development Information Service, https://cordis.europa.eu/) as the European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation. The articles will be also publicly available as under open license on one of the European research data repositories.

The main value of long-term preservation is the contribution to similar studies of socio-economical aspects in future energy strategies including nuclear energy in future energy policies.

4 Data security

In the frame of ECOSENS we will review the previously developed documents (like recommendations, studies, scientific papers, existing results from surveys …), perform opinion polls, group and individual interviews, analyse case studies in the national context based on available data and interviews with stakeholders, get feedback from workshops with different stakeholders and other events. All data collected and generated during those activities will be stored at the dedicated repositories developed within the ECOSENS project as part of the collaboration platform or other safe storage places to assure needed security. These storage resources will be available to authorized users within the ECOSENS partners only. Even now the ECOSENS website offers possibility to store internal documents on its private area of the website which can be shared only to the selected participants. Access control is handled by the IT responsible under the supervision of project coordinator and with the approval of related WPLs.

In addition, individual WPs will establish particular temporary repositories for implementation of work within the tasks as working space for example to store collected literature, perform literature review, store transcription of interviews, perform investigation and coding of the survey or statistical data processing. Only participants in the tasks will have access to such repositories, which after finalisation of work and development of reports, milestones and deliverables, will be deleted.

Central repository for ECOSENS outputs will be the project website with external, public part, where all deliverables, journal papers and other public documents will be, once adopted by EC, also published as part of green open access. For storage of internal documents, like milestone reports or other final documents, like protocols, notes, or any other documents important for implementation of activities for partners, internal ECOSENS website repository will be used. The complete ECOSENS website is administrated by project coordinator, who will also provide the storage repository under safe and secure conditions for the project outputs with continuous backups.

Special attention will be given to data transfer security which involves safeguarding data during its transmission to ensure confidentiality, integrity, and availability. Most partners are part of organisations which already now implement measures for encryption using protocols like Transport Layer Security (TLS) or Secure Sockets Layer (SSL), strong authentication mechanisms, firewall and network security, data loss prevention, regular updates and patches, physical security, auditing and monitoring, employee awareness and training, and considering third-party security. By implementing these practices, inolved organizations will protect data from unauthorized access, interception, tampering, and leakage, thus mitigating the risks of data breaches and ensuring secure data transfers.

5 Ethical aspects

ECOSENS explicitly elicits and takes stakeholders' ethical views into account in qualitative activities (WP1) and in sustainability assessment (WP2). The ethical obligations resulting from the project activities involving human participants (focus groups, interviews, observations, surveys and workshops) also are transparently addressed. All the project partners have extensive academic experience with, and practical knowledge about, the relevant ethical requirements and issues, including General Data Protection Regulation, as well the ethical rules of conduct in Social Science and Humanities research.

Partners will conform to current European and national legislation and regulations in the countries where these activities will be carried out. Where requested by national regulation or rules, partners will seek the approval of the relevant ethics committees prior to the start of activities that might raise ethical

issues. In all cases, before interviewing, engaging and/or observing respondents, participants' interests will be safeguarded by asking them to grant informed consent based upon a clear understanding of the project's aims and procedures. In line with the European Code of Conduct for Research Integrity and international professional standards for sociological research, all participants' names will be anonymised to ensure participants' privacy and each participant will have the possibility to withdraw from the activity at any time. Project partners will also adhere to the EU guidelines on research ethics. Data from interviews and surveys will be stored as anonymised records, according to ethical rules of conduct in Social Science and Humanities research.

Regarding energy ethics and social justice, ECOSENS will organise a proportion of project and stakeholder meetings online, to minimise costs and greenhouse gasses emissions, and maximise inclusive participation and diversity.

Personal data protection (GDPR)

All activities in the ECOSENS will fulfil requirements of the EU General Data Protection Regulation (Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC). Each WPL in ECOSENS will ensure that the personal data of any stakeholders or any other individuals (also referred to as data subjects) is processed in compliance with the applicable data protection rules and EU General Data Protection Regulation. The ECOSENS Work Package Leaders (WPLs) have expert knowledge of data protection, personal and professional qualities as well as good understanding the project. The ECOSENS WPLs will: a) Ensure that all partners and data subjects are informed about their data protection rights, obligations and responsibilities and raise awareness about them; b) Give advice and recommendations to the project partners about the interpretation or application of the data protection rules; c) Create a register of processing operations within the project and notify if needed the European Data Protection Supervisor (EDPS) those that present specific risks (so-called prior checks); d) Ensure data protection compliance within the project and help the latter to be accountable in this respect, e) Handle queries or complaints on request by the project, the controller, other person(s), or on his own initiative; f) Cooperate with the EDPS (responding to his requests about investigations, complaint handling, inspections conducted by the EDPS, etc.); g) Draw the project's attention to any failure to comply with the applicable data protection rules.

Sociological and behavioural studies

Ethical considerations are required for the following methodologies: interviews, focus groups, direct observation, ethnography, surveys, recordings and experiments with volunteers. Informed consent will be asked for all participants. Data collection using electronic encoding tools will be given special attention and dedicated protocol will be developed. A special data protection officer at the project level will be appointed with appropriate experience.

Research ethics committees (RECs) at partners' institutions (e.g. SCK•CEN, Universities) will closely follow the activities of the project at their institutions.

The following ethical considerations will be addressed:

- For the surveys and field experiments, the content and methodology will be subject to ethical approval from the responsible institutions. Interviews will be carried out with different categories of stakeholders and will include persons older than 18 years. A guarantee of anonymity will be

given and permission for recording will be asked in the form of written consent. All interviews are voluntary, no monetary or other compensation will be given.

- The recordings of the interviews will be stored on a secure private server for which only the project members conducting the interviews will have access. All the interviews will be transcribed, the personal information will be left out of the transcription. Characteristics such as institutions or category of stakeholder will be kept for analysis purposes. The transcriptions will also be stored on a secure private server and not shared beyond the project members responsible for analysis.
- Additionally, the contact information of the interviewer will be provided for follow-up questions or concerns.
- All field work will be anonymised.
- GDPR requirements will be strictly adhered to as with other investigations involving humans.

6 Other

Most of the ECOSENS partners has institutional guidelines for data management. Where these are well developed, they are compatible and complementary to the guidelines adopted by ECOSENS and in this DMP. Several of the partners are compliant with international standards ISO standards like 9001, ISO 14001, ISO 17025.

7 References

[1.] Grant Agreement Number 101900009 — ECOSENS as from 24.05.2022
[2.] Zeleznik N. et al, (2023): Strategy and plan for communication, dissemination and exploitation of results, ECOSENS Deliverable D4.1.

Appendix A. Detailed DMP by WPs and tasks

WP No	Task No	Purpose of task	Purpose of subtask	Short description of data or dataset	Associated deliverable	Average side of data files generated	Data reuse	Estimated month of data delivered	Intention to share (yes/if no provide justification)	Cost of sharing
1	1.1	Public attitudes towards nuclear technologies, including new and emerging technologies	Systematic literature review - Milestone 1 report (M6)	Excel database with articles	D1.1	2 MB	no	M28	yes	Included in the project budget
			Case studies – focus groups and interviews BE, ES, CZ, SI, UK - Milestone 4 report (M26)	Report with summaries of focus groups and interviews (pdf)	D1.1	40 MB	no	M28	yes	Included in the project budget
			Case studies - public opinion survey in BE, CZ and ES. Survey questions to be included in national public opinion survey - Milestone 2 report (M12)	Report with analysis (pdf) Excel files with survey data	D1.1	2 MB	no	M28	yes	Included in the project budget
			Online workshop with Local Information	Report (pdf)	D1.1	2 MB	no	M28	yes	Included in the

			Committees and GMF (M21)							project budget
	1.2	Impact of new social movements and interest groups on attitudes towards nuclear energy	To obtain social climate with regards to attitudes towards energy matters and nuclear	Report from protests and advocacy movements (pdf)	D1.2	10 MB	yes - reuse the restricted dataset	M30	yes	Included in the project budget
	1.3	Analytic and critical review of stakeholder engagement in energy governance and collaborations	Methodology for assessment of the uptake of stakeholder engagement and inter-disciplinary collaborations in nuclear R&D and decision-making - Milestone 3 report (M15)	Report (pdf)	D1.3	5 MB	no	M36	yes	Included in the project budget
			Online survey with regulators, research institutions and other societal stakeholders - Milestone 5 report (M28)	Report with summaries of transcripts from interviews (pdf)	D1.3	10 MB	no	M36	yes	Included in the project budget
			In-depth case studies with media data analyses and in-depth interviews in SI, BE, Slovakia, ES, UK, RO - Milestone 6 report (M30)	Report with summaries of media analyses and summaries of	D1.3	10 MB	no	M36	yes	Included in the project budget

				transcripts from interviews (pdf)						
			Session/workshop on transdisciplinary collaboration with SHARE event (M19)	Report from workshop (pdf)	D1.3	5 MB	no	M36	yes	Included in the project budget
			Practical recommendations for enhanced mechanisms of interaction between citizens, civil society, decision-makers and researchers - Milestone 7 report (M32)	Report from Task 1.3 (pdf) also as Deliverable 1.3	D1.3	40 MB	no	M36	yes	Included in the project budget
	1.4	Deliberative engagement workshops	International workshop on current societal challenges and imagined energy futures	Report (pdf)	D1.4	10 MB	no	M30	yes	Included in the project budget
			International workshop on disruptive climate change events and their influence on energy choices	Report (pdf)	D1.4	10 MB	no	M30	yes	Included in the project budget
			International workshop on recommendations for stakeholder engagement in (nuclear) energy governance	Report (pdf)	D1.4	10 MB	no	M30	yes	Included in the project budget

			Session on sustainability assessment of nuclear energy	Session at RICOMET conference	D1.4	N/A	no	M30	yes	Included in the project budget
2	2.1	To investigate the sustainability of current commercial nuclear technologies (Gen III/III+) across the entire life cycle,	Mapping the methodologies, comparative analysis - Milestone 8 report (M6)	Report prepared for the workshop with stakeholders (pdf)	D2.1	2 MB	no	M12	yes	Included in the project budget
			Set of assumption on short- and medium-term development of nuclear power (M8)	Report with the assumptions (pdf)	D2.1	1 MB	no	M12	yes	Included in the project budget
			Set of indicators to assess the sustainability of energy alternatives (M5)	Report prepared for the workshop with stakeholders (pdf)	D2.1	1MB	no	M12	yes	Included in the project budget
			Set of fiches describing the indicators for different energy technologies - Milestone	Report (pdf)	D2.1	10 MB	no	M12	yes	Included in the project budget
			Set of weightings	Report	D2.1	1 MB	no	M12	yes	Included in the

				(pdf and Excel)						project budget
			Set of data resulted from the testing of the methodology	Report (pdf and Excel)	D2.4	10 MB	no	M24	yes	Included in the project budget
			Assessment of the sustainability performances of nuclear power vs other energy technologies	Report (pdf and Excel)	D2.4	10 MB	no	M24	yes	Included in the project budget
2	2.2	To analyse medium- and long-term perspective of the society development in order to identify the possible roles of nuclear power, including emergent technologies, in the future energy markets	Set of influencing factors on future development and on the energy market	Report presenting the set of factors prepared for the webinar (pdf)	D2.2	3 MB	no	M12	yes	Included in the project budget
			Data describing the scenarios (European Reference Scenario 2020 and other identified possible evolutions)	Report (pdf)	D2.3	1MB	no	M16	yes	Included in the project budget
2	2.3	Produce recommendations for an improved methodology to	Assessment of the methodologies	Separate Annex of the workshop	D2.1	2 MB	no	M12	yes	Included in the project budget

		assess sustainability		report (pdf and Excel)						
			Data collected from webinar (perceptions/opinions/judgements) on the assumptions	Report on the webinar (pdf)	D2.2	1MB	no	M12	yes	Included in the project budget
3	3.1	Analysis of the peer reviewed scientific literature on System of Provision and relevant examples in industrial sectors including both energy and other applications (e.g. automotive).	Collection of up-to-date knowledge of SoP with examples	Submitted Journal paper (pdf)	D3.1	3 MB	no	M10	yes	Included in the project budget
	3.2	Derive a new novel model based on the System of Provision approach to create and calculate indicators relevant for a plethora of stakeholders	Engage with stakeholders having a negative view on nuclear power at citizen level by a questionnaire survey to capture their views	Report presenting the model (pdf)	D3.2	3 MB	no	M14	yes	Included in the project budget
			Develop a tool enabling the assessment of energy socio-							

			technical systems (particularly nuclear energy) according to the SoP approach							
	3.3	Create a framework to calculate the social discount rate for energy system, particularly nuclear infrastructure	Engage with leading experts of social discount rate through in-depth interviews	Journal paper presenting the tool/framework (pdf)	D3.3	3 MB	no	M16	yes	Included in the project budget
			Engage with leading experts of social discount rate through online workshop							
			Develop a tool/framework to calculate social discount rates							
	3.4	Enhancement of the SoP model developed in previous tasks	Engage with leading experts of circular economy and leading experts in system of provision through interviews	Journal paper presenting the tool/framework (pdf)	D3.4	3 MB	no	M24	yes	Included in the project budget
			Engage with leading experts of circular economy and leading experts in system of provision through a workshop							
			Develop a tool enabling the assessment of energy systems (particularly nuclear energy) according							

			to the system of provision approach incorporating both the social discount rate and circular economy principles							
	3.5	Application of the model to multiple case studies	Desk reviews to collect secondary data about the case studies	Journal paper presenting the different case studies and describing the future role of nuclear energy in EU countries	D3.5	3 MB	no	M32	yes	Included in the project budget
			Interviews with relevant stakeholder to collect primary data about the case studies							
			Engage with stakeholders having a negative view of nuclear power							
	3.6	Collection of feedback from CSOs and nuclear sector stakeholders on the System of provision model	Presentation of the feedback from different stakeholders	White paper (pdf)	D3.6	2 MB	no	M34	yes	Included in the project budget
	3.7	Developing recommendations covering both the consideration of novel criteria in the development	Collection of recommendations for energy sector	Policy brief (pdf)	D3.7	2 MB	no	M35	yes	Included in the project budget

		of future energy infrastructure and the role of nuclear energy in the future EU energy mix								
		Developing a series of insights based on the novel model presenting the role of nuclear energy in the future EU energy mix	To provide results to broader audience and different stakeholders	YouTube video (mp4)	D3.8	200 MB	no	M36	yes	Included in the project budget