



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




Project Number: 101060920

Deliverable 5.1: Minutes of the Kickoff Meeting Work Package 5

Lead Beneficiary: RATEN

Due date: 30/11/2022

Released on: 23/01/2023

Author(s):	Daniela Diaconu, Catrinel Turcanu, Gaston Maskens, Marin Constantin, Giorgio Locatelli, Nadja Zeleznik, Claire Mays	
For the Lead Beneficiary	Reviewed by Work package Leader	Approved by Coordinator
Marin Constantin	Daniela Diaconu	Daniela Diaconu
		

Dissemination Level		
PU	Public	X
RE	Restricted to project partners and EC	
SEN	Sensitive (EU-restricted)	



Funded by the
European Union

Project information

Project full title:	Economic and Social Considerations for the Future of Nuclear Energy in Society
Acronym:	ECOSENS
Funding scheme:	CSA
ECGA number:	101060920
Call/topic	HORIZON-EURATOM-2021-NRT-01-14
Coordinator:	Regia Autonoma Tehnologii pentru Energia Nucleara (RATEN) – Daniela Diaconu
EC Project Officer:	Maria Papadopoulou
Start date – End date:	1 October 2022 - 30 September 2025 (36 months)
Coordinator contact:	+40 744 701 476, daniela.diaconu@nuclear.ro
Administrative contact:	+40 744 701 476, daniela.diaconu@nuclear.ro
Online contacts (website):	https://ecosensproject.eu

Document information

Deliverable Title	Minutes of the Kick-off Meeting
Deliverable No.	5.1
Work Package No.	5
Work Package Title	Management and cooperation
Lead Beneficiary	RATEN
Contractual Delivery Date	30.11.2022
Actual Delivery Date	30.12.2022
Type	R
Dissemination level	PU
Authors	Daniela Diaconu (RATEN), Catrinel Turcanu (SKC.CEN), Gaston Maskens (SCK:CEN), Marin Constantin (RATEN), Giorgio Locatelli (POLIMI), Nadja Zeleznik (EIMV), Claire Mays (SYMLOG)

To be cited as:

Diaconu D., et al., (2023): Minutes of the Kick-off Meeting, ECOSENS Deliverable D5.1

Disclaimer

The document is proprietary of the ECOSENS consortium members. No copying or distributing, in any form or by any means, is allowed without the prior written agreement of the owner of the property rights.

Acknowledgement

This project has received funding from the Euratom Research and Training programme, a complementary funding programme to Horizon Europe, under grant agreement No 101060920. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union, European Commission or European Atomic Energy Community (granting authority). Neither the European Union nor the granting authority can be held responsible for them.



Funded by the
European Union

Document information

Status of deliverable		
	By	Date
Delivered (Lead Beneficiary)	RATEN	04/01/2023
Verified (WP Leader)	RATEN	06/01/2023
Reviewed (Reviewers)	WPLs	07/01/2023
Approved (PC)	RATEN	16/01/2023
Submitted to EC (PC)	RATEN	23/01/2023



Funded by the
European Union

Contents

Executive Summary	2
1 Introduction	3
2 Agenda.....	3
3 Participants	5
4 1 st General Assembly Meeting	6
4.1 Election of the General Assembly Chair.....	7
4.2 Approval of the Coordination Committee (CC).....	7
4.3 Approval of the Advisory Board composition	7
5 Kick Off Meeting.....	8
5.1 Introductory session	8
5.2 Work package 1 - A collaborative assessment of (imagined) energy worlds	10
5.3 Work package 2 - Sustainability assessment of the whole cycle of nuclear power	12
5.4 Work package 3 - A System of Provision approach for nuclear power	14
5.5 Work package 4 - Communication, Dissemination and Exploitation of Results.....	15
5.6 Work package 5 - Management and cooperation.....	16

Executive Summary

Deliverable D5.1 – Minutes of the Kickoff Meeting reports on the content, discussions and decisions made with the occasion of the launch of the European ECOSSENS project, financed under the Horizon Europe EURATOM Programme.

The event organized and hosted by RATEN ICN in Mioveni, Romania, on October 25-26, 2022, was attended by all ECOSSENS partners and the Project officer, either in person or online.

In its first meeting, the General Assembly of the ECOSSENS project elected Mrs. Catrinel Țurcanu (SCK.CEN) as president of the General Assembly, approved the composition of the Coordination Committee (CC) and Advisory Council.

During the Kickoff meeting, the objectives, structure and expectations of the project were presented, as well as the concrete ways of implementing the planned actions. Each Work Package (WP) leader presented the general approach to the proposed objectives, the detailed activities, as well as the interactions with the other WPs.

The discussions allowed a better correlation of the different activities at the project level, as well as a prioritization of the most urgent tasks, clearly outlined in the document.

1 Introduction

This deliverable summarizes the content, discussions and decisions made during the Kick-off Meeting of the European ECOSSENS project.

The ECOSSENS project has the following objectives:

- to analyze citizens' views and perceptions or risks, benefits and potentials of current and new nuclear technologies in the context of major societal challenges (climate crisis, sustainable energy policies, energy security). It will also 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.
- to assess the sustainability of the current nuclear energy technologies taking into account the entire life of the nuclear investment including the nuclear fuel cycle. 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, and ethicists, industry, policy makers, civil society stakeholders) are integrated and methodological recommendations for sustainability assessment are formulated.
- to address the shortcomings of existing economic models, a novel model based on the system of provision approach will be developed in order to create and evaluate indicators relevant for a plethora of stakeholders (consumers, governments, suppliers).

The project combines disciplines from three domains: nuclear science and technology, social sciences and humanities, and economics, and gathers in its consortium specialists with views and competencies specific to these fields.

The meeting launching the project brought together all partners of the project with the aim to ensure the common understanding of its objectives and expected outcomes, to establish the list of priority actions, as well as the interconnections between them.

2 Agenda

The Kick-off Meeting took place on 25 and 26 October 2022 in the premises of RATEN ICN Mioveni, Romania. It was organized as a hybrid meeting, giving therefore the possibility to all partners to attend it, if they could not be physically present.

The Kick-off Meeting was preceded by the 1st General Assembly Meeting, with the following agenda:



AGENDA of the 1st General Assembly Meeting	
October 25, 2022	
9:30 – 9:40	Participants Brief Introduction
9:40 – 9:50	Election of the General Assembly Chair
9:50 – 9:55	Approval of the Coordination Committee (CC) <ul style="list-style-type: none"> - WP1. Gaston Meskens - WP2. Marin Constantin - WP3. Giorgio Locatelli - WP4. Nadja Zeleznik - WP5. Daniela Diaconu
9:55 – 10:00	Approval of the Advisory Board composition

The Kick-off Meeting was carried out according to the following agenda:

Day 1 - 25 October 2022

Bus departure from Pitesti: 8:40 - Hotel Arges, 8:45 – Hotel Ramada

Zoom: <https://us06web.zoom.us/j/88324961654?pwd=SlhQaDRSOGhOWFBiNDUyMlRkOUVIZz09>

10:00 - 10:10	Welcome	Alexandru Toma Strategy and Development Director (<i>RATEN</i>)
10:10 - 10:30	Participants introduction	All
10:30 - 11:00	Horizon Europe Euratom 2021-2025	Maria Papadopoulou Project officer (<i>European Commission</i>)
11:00 - 11:30	ECOSENS – Objectives, structure, expectations	Daniela Diaconu (<i>RATEN ICN</i>)
11:30 – 11:45	Coffee break (15min)	
11:45 - 12:45	WP1 - A collaborative assessment of (imagined) energy worlds Discussions	Catrinel Turcanu Gaston Meskens (<i>SCK.CEN</i>)
12:45 - 14:00	Lunch	
14:00 - 15:00	WP2 - Assessment of the sustainability of the whole cycle of nuclear power Discussions	Marin Constantin (<i>RATEN ICN</i>)
15:00 – 15:15	Coffee break (15min)	
15:15 - 16:15	WP3 - A System of Provision approach for nuclear power (45 min) Discussions	Giorgio Locatelli (<i>POLIMI</i>)
16:15 – 18:00	WP1 working meeting	

Day 2 – 26 October 2022

Departure from Pitesti: 8:45- Hotel Arges, 8:50 – Hotel Ramada

Zoom: <https://us06web.zoom.us/j/82118851820?pwd=TENRNDB4WXF6NTJuRklybzVlMHF5UT09>

9:30 - 10:30	WP4 - Communication, Dissemination and Exploitation of Results Discussions	Nadja Zelenski (EIMV)
10:30 - 11:00	WP5 – Management and interdisciplinary collaboration	Daniela Diaconu (RATEN) Claire Mays (SYMLOG)
11:00 – 11:15	Coffee break	
11:15 – 12:00	Discussions	
12:00 - 13:00	Lunch	
13:00	End of the day	

3 Participants

The meeting was attended by 23 participants (13 in person and 10 on line) including representatives of the European Commission, 11 organisations and one associated partner of the ECOSSENS consortium (Figure 1). The 23 participants are listed in Table 1.

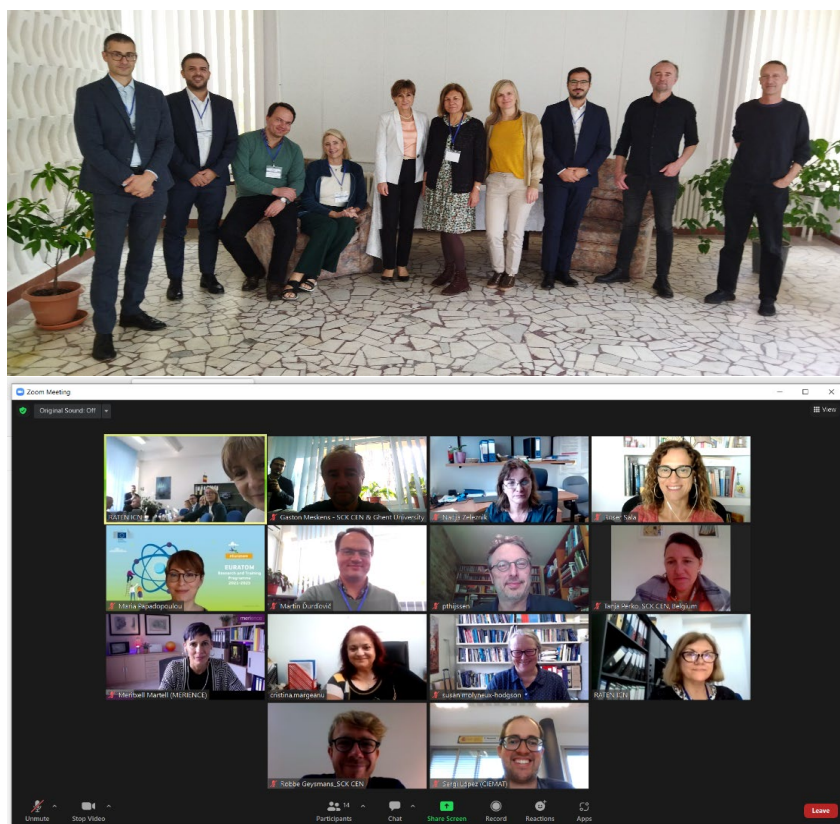


Figure 1. In person and on-line participants to the ECOSSENS Kick-off Meeting, 25-26 October 2022

Table 1. List of participants at the ECOSENS kick-off meeting

	Participant's name	Affiliation	Attendance
1.	Maria Papadopoulou	European Commission/Project Officer	On line
2.	Alexandru Toma	RATEN/RO	In person
3.	Daniela Diaconu	RATEN ICN/RO	In person
4.	Marin Constantin	RATEN ICN/RO	In person
5.	Simina Brotescu	RATEN ICN/RO	In person
6.	Minodora Apostol	RATEN ICN/RO	In person
7.	Cristina Margeanu	RATEN ICN/RO	On line
8.	Catrinel Turcanu	SCK.CEN/BE	In person
9.	Meskens Gaston	SCK.CEN/BE	In person
10.	Robbe Geysmans	SCK.CEN/BE	On line
11.	Tanja Perko	SCK.CEN/BE	On line
12.	Claire Mays	SYMLOG/FR	In person
13.	Martin Durdovic	ISAS CR/CZ	In person
14.	Giorgio Locatelli	POLIMI/IT	In person
15.	Giacomo Dei	POLIMI/IT	In person
16.	Peter Mihok	UMB/SK	In person
17.	Benito Mignacca	UNICAS/IT	In person
18.	Nadja Zeleznik	EIMV/SI	On line
19.	Roser Sala	CIEMAT/ES	On line
20.	Sergi Lopez	CIEMAT/ES	On line
21.	Merixell Martell	MERIENCE/ES	On line
22.	Peter Thijssen	U ANTWERPEN/BE	On line
23.	Susan Molyneux-Hodgson	UNEXE/UK	On line

4 1st General Assembly Meeting

An authorization letter designating the person who will deliberate, negotiate and decide on all relevant matters as a member of the General Assembly (GA) was requested and provided to the coordinator before the meeting from the partners not represented in the GA meeting by the authorized representative.

The meeting started with the self-introduction of each GA member.

Daniela Diaconu – project coordinator – recalled the main objectives of the 1st GA meeting:

1. Election of the General Assembly Chair
2. Approval of the Coordination Committee (CC)
3. Approval of the Advisory Board composition

and presented the governance structure of the project:

- *General Assembly (GA)* – which is the main governance structure of the project. The GA has the overall responsibility of the project, and is the ultimate decision-making body of the project. GA deals with aspects regarding the Intellectual Property Rights (IPR), publications, results and product dissemination. GA consists of one representative of each partner institution and is led by a Chair elected from among its members, and shall meet once per year, or whenever needed. Each member of the GA shall be authorized by her/his organization to act and vote on behalf of the respective partner in ECOSENS.
- *Coordination Committee (CC)* – which is the structure in charge with day-by-day Project management. The CC consists of Coordinator and the four ECOSENS Work Package Leaders.
- *Advisory Board (AB)* – an external structure of the project, with the role of supervising the project development. The AB advises on critical questions throughout the project and answers specific questions raised during project implementation.

4.1 Election of the General Assembly Chair

Catrinel Turcanu (SCK.CEN) was proposed (by Marin Constantin) and voted in unanimity as Chair of the ECOSENS General Assembly.

4.2 Approval of the Coordination Committee (CC)

The General Assembly voted in unanimity the composition of the ECOSENS Coordination Committee, consisting of:

- Gaston Meskens (SCK.CEN) – Lead WP1
- Marin Constantin (RATEN) – Lead WP2
- Giorgio Locatelli (POLIMI) – Lead WP3
- Nadja Zeleznik (EIMV) – Lead WP4
- Daniela Diaconu (RATEN) – Lead WP5 and project coordinator

4.3 Approval of the Advisory Board composition

The Advisory Board shall be set up in the beginning of the project and, according to the Annex 1 of the Grant Agreement, shall consist of experts in economics, sociology, humanities, nuclear energy, and energy markets, as follows:

- one expert in advanced nuclear technology representing the European technological platforms/associations or international organizations
- one specialist in economics and energy market
- two specialists in social science and humanities
- one representative of the Civil Society

During the development of the ECOSSENS proposal, the following organisations were identified as potential sources of experts for the Advisory Board:

- SNETP/IAEA
- Schools in Economics in Europe
- SHARE Platform,
- European Environmental Bureau
- Nuclear Transparency Watch.

The General Assembly was consulted on the AB configuration and its completeness. It was suggested that the AB should be strengthened with:

- an expert on sustainability aspects of nuclear energy, such as JRC Ispra (namely the person involved in the recent report related to taxonomy (proposal by Catrinel Turcanu – SCK. CEN)
- a representative of the Group of European Municipalities with Nuclear Facilities, GMF (proposal by Meritxell Martell - MERIENCE)
- a representative of MEENAS, the Consortium of European Radiation Protection Research Platforms (proposal by Tanja Perko – SCK CEN)

The General Assembly approved the composition of the Advisory Board, completed with the new proposals.

To do:

To recruit the AB members, invitations will be sent by the Coordinator to all the above identified organisations.

5 Kick Off Meeting

5.1 Introductory session

Alexandru TOMA (RATEN), Strategy and Development Director welcomed the participants and expressed his appreciations for the topics addressed by the project emphasizing the particular importance of the social and economic aspects of the nuclear energy in the current global context (energy crisis, supply security, climate change). He wished the ECOSSENS project success in its deployment.

Maria PAPADOPOULOU (European Commission), EC Project officer, presented the EURATOM R&D Programme 2021-2025 in the context of the Horizon Europe, the expected outcomes of the ECOSSENS project, the elements of financial and administrative nature specific to the Horizon Europe Programme, and the IPR, Communication & Dissemination aspects.

She underlined some practical aspects regarding reporting, such as actual costs (Art 6.1 of Grant Agreement), respect of the project management, calendar for reports review and for payment,



update of the Annex 1 through amendments, provisions regarding the certificates and audits reviews.

Of particular interest was the information on the IPR, communication and dissemination aspects, especially the news about the Open Research Europe (ORE) Platform, a peer reviewed open access publishing platform recently launched by the EC, where Horizon 2020, Horizon Europe and Euratom beneficiaries can publish their work and have it evaluated through open peer review free of charge. The ORE Platform supports the EU open access policy and the beneficiary capacity to adhere to it and also enables publishing post-grant.

The presentation opened discussions about the obligation to ensure open access to peer-reviewed scientific publications relating to the project results, and the respective publication fees that are eligible for reimbursement (*Tanja Perko*).

Maria Papadopoulou clarified that the funding requirements on open access to scientific publications specify that at the latest at the time of publication a machine-readable electronic copy of the published version, or of the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights. More details can be found in Annex 5 of the Grant Agreement.

It was agreed that all questions the consortium might have regarding scientific publications will be collected by the Coordinator and submitted to the EC project officer and, if necessary, obtain clarification from the EC department in charge of Open Science policy.

Daniela Diaconu (RATENICN), Project Coordinator, gave a general overview of the ECOSSENS project, pointing out the objectives, structure and expectations of the project.

ECOSSENS was designed to create a neutral space where specialists in social sciences and humanities, and in nuclear energy research and policy 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, by opening up the techno-scientific issues to the social, political, cultural and ethical context, in order to guide policies in the nuclear field.
- *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;
- *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).

It is implemented by 11 partners from eight EU Member States, and one associated partner from the UK. The ECOSSENS consortium is a balanced mix of research centers, TSOs, academia and

SMEs, with competencies in social sciences and humanities, economics and management, and nuclear energy.

The activities of the ECOSSENS project foresee the interaction with a wide group of stakeholders:

- scientific community and researchers (natural, technical and social);
- civil society / non-governmental organisations (CSOs/NGOs)
- decision-makers and national authorities;
- local information committees, municipalities with nuclear facilities or planning (new ones)
- nuclear industry and other relevant industrial actors (including investors);

as well as with relevant ongoing EURATOM projects (HARMONISE, EURAD/WP UMAN), European platforms (SNETP, IGD TP, SHARE) and international organisations (IAEA, NEA/OECD, EC).

It is expected that the ECOSSENS project will provide:

- **recommendations on stakeholder engagement** (including citizen's views / civil society) in the process of nuclear policy development and implementation;
- **analysis of the global total costs of nuclear energy**, and assessment of nuclear energy's contribution to a climate-neutral EU energy system by 2050 from societal perspective;
- **analysis of the energy market evolution and development** contributing to better predictions of energy demand and of possible paths to satisfy consumer needs, reflected in future energy policies and strategies adapted to citizen' needs;
- **new indicators** for the planning and assessment of nuclear infrastructure which are relevant for several stakeholders, not just the financiers.

Simina Brostescu (RATEN ICN), financial responsible of the project, briefly presented the project budget and the current situation of the payment.

The total budget of the project is 1 419 581.55 EUR, with a funding rate of 100%.

A pre-payment of 780 769.85 EUR (representing 60%) has been received and distributed to all partners, and an amount of 70 979.08 EUR (5%) has been retained for the Mutual Insurance Mechanism.

5.2 Work package 1 - A collaborative assessment of (imagined) energy worlds

Gaston Meskens (SCK.CEN), WPI lead, presented the objectives, the structure, the activities and the expectations of the work package dedicated to the social aspects of nuclear energy.

Related to the scope of WP1 (A collaborative assessment of (imagined) energy worlds), G. Meskens highlighted that various narratives, stories, symbols, models, concepts, images, objects, actors, networks, systems, calculations, hypotheses and scenarios are relevant to the construction of mental images of concepts related to desired energy worlds.

G. Meskens and C. Turcanu (WP1 co-lead) summarised the main tasks of WP1:

(Task 1.1.) Clarify citizens' perceptions of risks, benefits and potentials of current and new nuclear energy technologies in the context of major societal challenges

(Task 1.2.) Clarify the impact of new social movements and interest groups, in the context of major societal challenges

(Task 1.3.) Review through a socio-ethical lens current energy governance policies and assess the uptake of recommendations on stakeholder engagement and transdisciplinarity (integration of SSH) in nuclear research and decision making, and develop recommendations for overcoming standing challenges.

(Task 1.4.) Engage societal stakeholders in order to explore their evidence- and value-based perspectives on sustainability and energy governance assessments and the role of nuclear energy herein; and to explore and co-construct with them possible energy futures, taking into account ongoing energy transitions and climate change and other major societal challenges.

It was stressed that **WP1** will contribute critical reflections on assumptions and hypotheses for sustainability assessments to **WP2** and **WP3**, in general, and to **T2.1** in particular.

Discussion:

T1.1

T1.1 task force had undertaken preliminary work on the methodological design of the systematic literature review. Further details on T1.1 were provided and discussed in the dedicated WP1 meeting. The task force took the opportunity to consult the design of the literature review with other project partners. Participants suggested to enlarge the keywords of the literature review, by adding also “energy dependence”, and to conduct snowballing (if resources allow).

It was argued (*by Claire Mays, SYMLOG*) that the literature review in T1.1 has not only general (external) research value, but also provides meaningful insights to WP 2 and 3.

T1.2

Peter Thijssen, UA, highlighted that T1.2 will clarify how policy images are related to general social frames; and compare participants to anti-nuclear and climate-related protests. It was suggested that it might be useful to invite researchers from the UA who do protest surveys in Focus Groups or deliberative settings.

Gaston Meskens noted that climate actions are not necessarily anti-nuclear.

Nadja Zeleznik, EIMV, mentioned that pro-nuclear movements are now very visible and take part in different events.

Peter Thijssen suggested that based on previous research political parties might be looked at as interest groups; they are huge players; social movements get limited space in the media.

T1.3

Nadja Zeleznik indicated that T1.3 will require inputs from other parts of WP1.

Concerning T1.3.1, the survey will be implemented online at EU level with the aim of assessing the uptake in the nuclear field of recommendations on stakeholder engagement and transdisciplinary collaborations in energy governance;

T1.3 will also look at transdisciplinary collaborations in nuclear research, development and innovation through a workshop in collaboration with SHARE (possibly RICOMET 2024)

It was reminded (*Susan Molyneux-Hodgson*) that:

- other projects that have looked at transdisciplinarity – these may serve as a basis;
- transferability of ideas with non-nuclear related research on sustainable development and environmental management might be explored.

T1.4

Marin Constantin pointed out that now there is a lot of interest in SMRs; this should be also included in IW1 – *Maria* can help identify potential participants.

Claire Mays reminded that the workshops should be co-constructive, not just one-way data collection methods.

5.3 Work package 2 - Sustainability assessment of the whole cycle of nuclear power

Marin Constantin (RATEN), WP 2 leader, introduced the objectives of the WP dedicated to the assessment of the sustainability of the whole cycle of nuclear power and presented in details the approach proposed to provide at the end of the project a methodology in support of a better understanding of economic, environmental, and social/ethical aspects of the entire fuel cycle and of the different phases of the investment as applied to Gen II and III systems and extended to emergent nuclear technologies. Three steps have been foreseen in this regard:

- review of existing methodologies and tools for sustainability assessment and selection of the most appropriate ones, along with a set of assumptions;
- investigation of the possible evolution of the energy market (demand, energy mix, rules, etc.), in the frame of the climate neutrality proposed for mid century
- analysis of the impacts of identified driving factors on the market with the aim to understand the role of nuclear power, with explicit consideration of the new nuclear systems (Generation III+, IV; SMRs).

All activities will involve both the nuclear and social researchers involved in the project, as well as a large category of stakeholders, via video meetings and workshops, through a close collaboration with WP1 (exchanges on sustainability) and WP3 (exchanges on the most suitable economic indicators).

Marin Constantin provided information about the existing methodologies for nuclear power sustainability assessment elaborated by IAEA (NESA - Nuclear Energy System Assessment, INPRO-KIND, RTA-Reactor Technology Assessment), JRC or NEA/OECD, which need to be

reviewed and analyzed as part of task 2.1, in order to **identify valuable elements and decide either to select one methodology or build an appropriate** to be implemented for the ECOSSENS sustainability assessment.

The second step consists of the elaboration of the evolution scenario(s) based on which the energy demand on medium and long term and, consequently, the role of nuclear power in the future energy market will be estimated.

He pointed out the difficulty to predict the future, especially for few decades away. Key factors to be considered are: demographics, trends in economy and quality of life, environmental policies, energy efficiency measures, technological evolution). Designing the assumptions (quantified statements or qualitative hypotheses integrated into the scenarios) should as well take into account the uncertainties associated with elements such as the impacts of the disruptive technologies, different crisis, and national/EU policies.

A detailed discussion of factors influencing the future developments of the European economy, market, energy sector, and society is foreseen to be performed as part of Task 2.2, based on elements from literature, and experience of the consortium experts (in both energy and societal investigation). The influencing factors proposed to be discussed (without being limited to) are:

- the impact of **disruptive technologies** on the development and electricity demand (Artificial Intelligence, additive manufacturing, Internet of Things (IoT), nanotechnologies, biotechnologies, big data, block chain, etc.);
- the impact of **different crisis** (global warming, migration, financial and economic);
- the impact of the **energy efficiency measures**;
- the impact of **electrification**, especially of the transport sector.

The result of discussions will be used in the development of some decarbonization scenarios considering coexistence of intermittent renewables and nuclear units. The scenarios will be analyzed in terms of flexibility, stability, security of supply, reliability, and price affordability, considering both current operating nuclear technologies, SMR systems and new innovative nuclear technologies.

Assumptions proposed for sustainability assessment, a draft report of the predicted impact of societal and technological changes on the future energy market, a draft of the scenarios for the development of nuclear new technologies and renewables, and a draft of sustainability assessment will be critically reviewed from the societal perspective as part of four in person or virtual workshops with participation of civil society and policy-makers, organized by Task 2.3. Collaboration with Task 1.4 will be supported when additional needs for investigation may be revealed.

Discussions:

Susan Molyneux-Hodgson (UNEXE, UK) enquired about the basis for selecting the specific technologies. She also argued that we should refer to “societal changes”, rather than “crises”, and proposed to carefully define the frame when introducing it in discussion.

Robbe Geysmans also pointed out that upstream assumptions made will need to be thoroughly justified. IW1 or W1 could be used to test these choices. *Peter Mihoc (UMB)* expressed his concerns on the treatment of differences in the national context when doing all these analyses.

Marin Constantin – considered the proposed assessment will be focused on the role of nuclear power at the level of EU, a detailed treatment of differences between MSs being beyond the scope of the work. However, such differences will be illustrated if their impacts will be considered important for the analysis. Related to the language, use of concepts and terminology, a continuous dialogue between energy and social experts will be stimulated to identify the sensitive issues and avoid misunderstandings.

Tanja Perko (SCK.CEN) considered that the method(s) selection and assumptions elaboration should be open for discussion at the whole level of the project, including stakeholders, not solely to the WP2 participants, since in her view “the level of reflection is important”.

Marin Constantin agreed that all these elements could be as well addressed in WP1, as part of the international workshops, which need to be correlated with the timeline of workshops foreseen in Task 2.

Catrinel Turcanu (SCK.CEN) was interested to know if other technologies such as thorium reactor will be considered.

Marin Constantin explained that it is proposed to investigate the existing technologies, followed on medium term SMR LWR and on long perspective by Gen IV. Task 2 will elaborate a few scenarios which will be validated by the project workshops.

To do:

A joint WP1 – WP2 discussion will be organized in December 2022 in order to correlate the topics and dates of the International Workshops foreseen in WP1 and Workshops planned in WP2, and eventually the Scientific Events of WP4.

Dedicated meetings for the different tasks within WP1 will be organized in order to carefully plan the work.

5.4 Work package 3 - A System of Provision approach for nuclear power

Giorgio Locatelli, WP3 leader (POLIMI, Italy) presented the goals, the structure and the expectations of the work package dedicated to the economic aspects of the ECOSSENS project.

He explained that that practitioners commonly adopt techniques to evaluate investments in infrastructures that present several limitations. Some of these limitations exist since Discounted Cash Flow method (DCF) is not designed for long-term investments, they are relevant for investors but not for other stakeholders, and they presume a forcibly subjective choice of the appropriate discount rate to reflect the risk of cash flows. In addition, some projects and investments are pursued independently of the results of the economic-financial analysis, as their objective is not to generate profit. These include schools, roads, public infrastructure, hospitals, etc. Similarly, cost-benefit analysis is heavily based on forecasts, involves significant

subjectivity in the definition of intangible costs and benefits, and also assumes hypotheses that are often unrealistic, such as perfect information and fully rational behaviours. Within this context, the System of Provision (SoP) approach is a more holistic approach according to which consumption outcomes depend on the system by which a good or service is provided. Therefore, a new model based on SoP should be created to complement existing DCF and Cost Benefit Analysis (CBA) in evaluating complex infrastructures, particularly nuclear infrastructures.

Benito Mignacca, Task 3.1 leader (UNICAS, Italy) presented the main steps, scheduling, and research objectives of task 3.1. Moreover, he detailed the methodology to critically analyze the scientific and industrial literature about the SoP approach and model.

Discussions:

Susan Molyneux-Hodgson pointed out the need to clarify what boundaries are drawn and what is taken into account (or not) into decisions; she also mentioned the need to nuance words such as “rationality”: people and societies have different rationalities.

Peter Thijssen argued that there is a lot of path dependency involved: one can overestimate the capacity of the nuclear industry to build a new narrative.

Peter Mihok – reflected on the difficulty to present these economic concepts to non-specialists participating in WP1 Workshop. Enough time for discussion should be allocated in periodic meetings.

Another question raised was on the difference between the system of provisions (SoP) and marketing, manipulation.

Giorgio Locatelli made clear that SoP stimulates intuition, and it is based on telling a true story and sharing reality honestly for all.

To do:

At WP3 level, a series of videomeeting will be organized, with WP1 participation, in order to prepare the workshop dedicated to SoP approach discussion.

5.5 Work package 4 - Communication, Dissemination and Exploitation of Results

Nadja Zeleznik, WP4 leader, EIMV, SI introduced the objectives, the work plan, and approaches used for the communication, dissemination and exploitation of results. The main activities will consist in:

- elaboration of the strategy and plan for communication, dissemination and exploitation of results
- proactive stakeholder engagement, including mapping of stakeholders, establishment of related networks and procedures for engagement, integration in project activities to assure different levels of engagement.

- establishment of online tools and elaboration of communication and dissemination material
- organisation of one scientific event per year for project dissemination and engagement of stakeholders (jointly with RICOMET or SHARE events when possible)

Funds are allocated for the subcontracting costs of the entire logistics of the three scientific events, costs for publishing and costs related to project webpage to support all the activities foreseen in WP5.

Discussions and decisions:

Project logo

Different versions of the ECOSSENS logo were proposed to the consortium. The majority was in favour of the following design:



Project webpage

The webpage construction and maintenance are the responsibility of RATEN. The first proposal was that the website be hosted on the RATEN ICN server, under the URL www.nuclear.ro. Being a European project, it was suggested to use a web address illustrating its EU dimension, such as www.ecosens.eu (if not already allocated).

Publication

As already mentioned by *Maria Papadopoulou*, in Horizon Europe and Euratom Research, fees for scientific publications are eligible for reimbursement only for full open access venues for peer-reviewed scientific publications. She underlined the distinction between Green and Gold Open Access and the different definitions used by publishers and recommended a useful tool to help check if a publication complies with the funding policy at <https://journalcheckertool.org/>.

Peter Thijssen (UANTWERPEN, BE) questioned about the obligation to publish in journal already public in repositories and pay the editors. *Maria Papadopoulou* indicated to consult the Annex 5 to the Grant Agreement.

To do:

RATEN will buy the internet domain for the project (<http://www.ecosens.eu/> if available).

The Coordinator will collect and send the Project Officer all questions regarding publications.

5.6 Work package 5 - Management and cooperation

Daniela Diaconu (RATEN), WP5 leader, presented the main activities of this WP aimed at ensuring the administrative and financial management of the project (Task 5.1), reporting to the Commission (Task 5.2), as well as the internal cooperation of the project (Task 5.3).



Claire Mays (SYMLOG), coordinator of Task 5.3, explained the need for an interdisciplinary dialogue and the means to be applied. Interdisciplinarity can be a challenge in this project, which directly involves nuclear scientists and engineers from different specialities as well as social scientists from various disciplines and fields. Thus, to manage interdisciplinarity, both semi-quantitative (survey on -line, as was carried out within the ARCADIA Project) and qualitative (deliberative) social research methods are intended to be implemented internally to agree on the terminology used in the project (so that all participants have the same understanding), identify and clarify assumptions within the project group, assess points, perceptions, attitudes and socio-technical imaginaries related to the nuclear future. The outcomes of this internal exercise will then be used in a deliberative process with stakeholders.

The implementation plan of the project was reviewed and, following the previous discussions on the need to correlate the WP1 and WP2 workshops, it was agreed to combine IW1 and W1, and jointly organize them in March 2023.

Discussions:

The possibility of organizing the first Scientific Event (SE1) planned for 2023 as a parallel event of the RICOMET Conference in September 2023 or as an ad hoc meeting of the SHARE platform, thus taking advantage of a wider audience, was also discussed.

Catrinel Turcanu raised a question related to the use of resources and their reporting. If some activities in the Description of Work originally intended to be implemented by senior staff are de facto performed by newly hired or junior staff (requiring more time for the same work), can actual effort be claimed? In other words, is it acceptable to exceed the originally planned effort while still staying within budget?

Maria Papadopoulou will respond in writing to this question

To do:

The Coordinator will send the Project Officer a message addressing this question.