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RES-SKILL PROJECT

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# O1-T1: METHODOLOGY TO MAP JOB TRANSITION REQUIREMENTS & SKILL COMPLEMENTARITIES

DEVELOPED BY:



PROMEA - HELLENIC SOCIETY FOR THE PROMOTION  
OF RESEARCH & DEVELOPMENT METHODOLOGIES



RES-SKILL - RESKILLING COAL INDUSTRY  
WORKERS FOR THE RENEWABLES  
ENERGY SECTOR





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## ACRONYMS AND ABBREVIATIONS

<b>AES</b>	AES Galabovo Thermal Power Plant
<b>BDB</b>	The Education Directorate for Burgenland
<b>BFI</b>	BFI Burgenland
<b>CCI</b>	Chamber of Commerce and Industry - Stara Zagora
<b>C-VET</b>	Continuous Vocational Education and Training
<b>ECVET</b>	European Credit system for Vocational Education and Training
<b>EMI</b>	Energy Management Institute
<b>EQF</b>	European Qualification Framework
<b>EU</b>	European Union
<b>I-VET</b>	Initial Vocational Education and Training
<b>KPI</b>	Key Performance Indicator
<b>LTT</b>	Liceul Tehnologic Ticlani
<b>MEERI</b>	Institute for Research on Minerals and Energy Economy
<b>OER</b>	Open Educational Resources
<b>PEDDM</b>	Regional Association of Local Governments of Western Macedonia
<b>PROMEA</b>	Hellenic Society for the Promotion of Research and Development Methodologies
<b>RENAC</b>	Renewables Academy
<b>RES</b>	Renewable Energy Sources
<b>RES-SKILL</b>	Reskilling coal industry workers for the renewables energy sector
<b>SZREDA</b>	Stara Zagora Regional Economic Development Agency
<b>VET</b>	Vocational Education and Training



## 1 Introduction

Over the past decades the production and consumption of coal in the EU has been in steady decline, due to the closure of coal mines and the phasing out of coal from many economic activities. At the same time, with Europe embarking on an energy transition based on clean energy, regions face a number of challenges. The decarbonisation of the EU-27 is expected to result in the loss of approximately 76 000 jobs in coal mines and plants until 2025; the number is expected to double, with more than 154 000 job losses projected until 2030. The countries of the RES-SKILL partnership will be particularly affected, since they currently represent 81% of the total EU coal workforce (190 000 jobs).

To assist EU countries and regions for a just clean energy transition, RES-SKILL focuses on the reskilling of coal workers. In particular, RES-SKILL aims to strengthen VET provision in the energy sector for low-skilled workers in coal mines and power plants, to re-orientate them to similar-outlook jobs in the already established but still growing RES sector. RES-SKILL expects to direct coal workers to compatible (skills-wise) RES sector jobs, to increase their reemployment opportunities and cover at the same time RES sector's skills demand.

The RES-SKILL consortium comprises six core partners plus five associated partners all with high capacity and qualifications. RES-SKILL partners come from six countries (GR, DE, AT, RO, BG, PL) largely dependent on coal-driven activities, representing the fields of VET, learning innovation, policymaking and research.

Table 1: The RES-SKILL consortium

A. CORE PARTNERS		
<b>PROMEIA</b>		Research & education association
<b>BFI</b>		VET institution
<b>LTT</b>		VET school
<b>RENAC</b>		VET & higher education institution
<b>SZREDA</b>		Development agency
<b>MEERI</b>		Research institution




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**A. CORE PARTNERS**

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**B. ASSOCIATED PARTNERS**

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<b>PEDDM</b>		Association of municipalities
<b>AES</b>		Lignite-fired Power Plant
<b>BDB</b>		Regional educational authority
<b>EMI</b>		Environmental policy NGO
<b>CCI</b>		Chamber of Commerce

## 1.1 About this document

This document is a methodology that will assist RES-SKILL partners to collect data on the mismatches and complementarities between the skillset of coal workers and the skills required for their future employment in the RES industry. In particular, the focus will be on the identification of:

- The current technical and non-technical (soft) skills of coal workers.
- The skill demand in RES industry blue collar and technical jobs.

In particular, the methodology will guide skills intelligence gathering activities by addressing:

- Research methods
- Data collection tools
- Target groups and sampling considerations
- Collection targets
- Implementation steps and timeline

In addition, this document will provide guidelines on how to formulate learning outcomes that will be used for the development of a RES-SKILL course. The course will address the retraining of coal workers for their transition to RES industry blue collar and technical jobs.



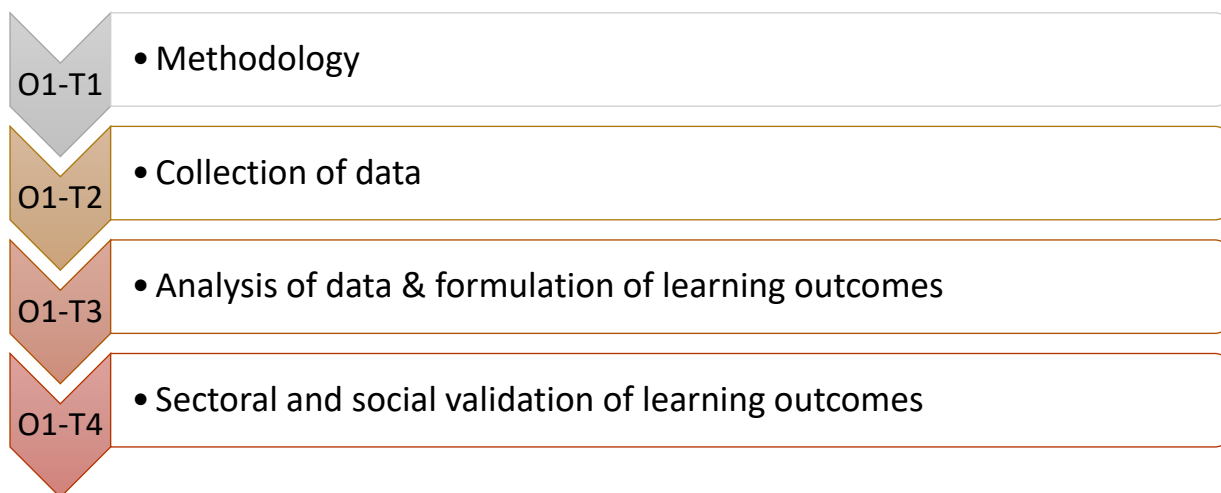
## 1.2 The O1 RES-SKILL output

The first Intellectual Output (O1) comprises tasks that will lead to the elaboration of learning outcomes on RES sector skills, specifically addressed to coal workers to facilitate their shift/transition to the RES industry. The elaboration of the RES-SKILL learning outcomes will be based on research on the current skillset of blue collar occupations in the coal industry and the current and future training needs of the RES industry, as emerging from new environmental legislation (e.g. EU Green Deal) and changing employers' expectations.

The primary objective of this output is to make available up-to-date, tailor-suited to occupational needs, RES learning outcomes for coal workers, suitable for integration into RES sector VET provision.

The first task of the 1st Intellectual Output is this methodology (O1-T1) to guide data collection efforts. Afterwards, the collection of evidence on a) skills complementarities between coal workers and RES sector occupations, b) RES sector workplace/skills requirements, and c) existing training opportunities for the transitioning of coal workforce to RES sector occupations (O1-T2) will provide an informed basis for the development of RES-SKILL learning outcomes (O1-T3 & O1-T4).

Figure 1: Progression of tasks in the RES-SKILL O1





## 2 Data collection methodology

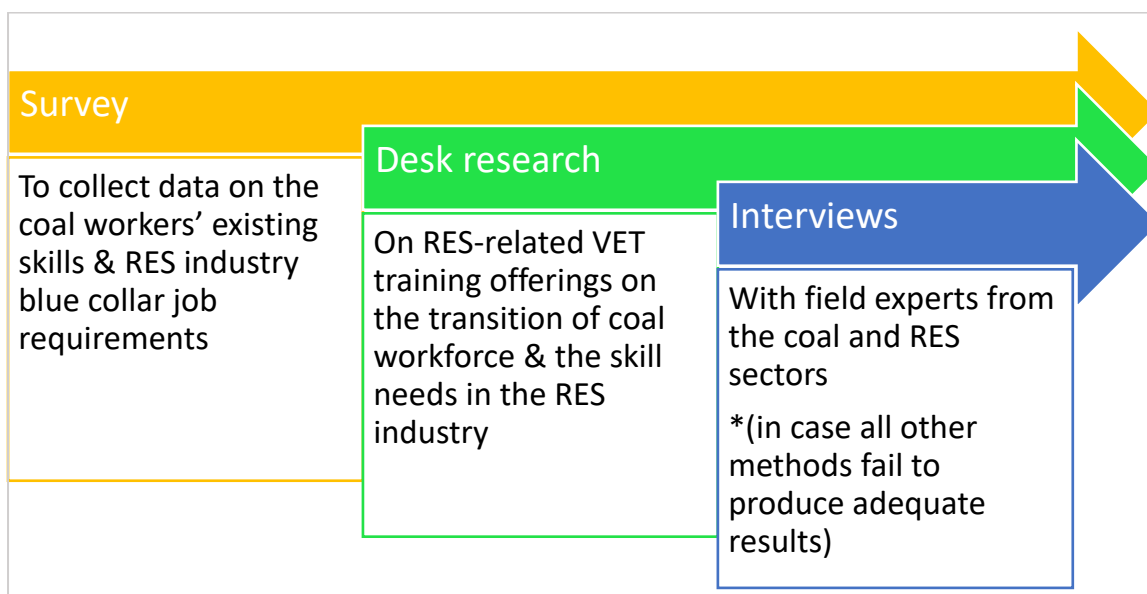
### 2.1 Research questions and approach

The research aims to respond to the following questions:

1. Which are the current (technical and non-technical) skills of coal workers that have been acquired through formal, informal, and non-formal learning<sup>1</sup> (e.g. on-the-job training, experience)?
2. What are the current and future training needs of blue-collar workers and technicians in the RES industry, arising from the growing markets (e.g. of solar PV and wind) and the widespread diffusion of clean energy technologies?
3. What are the complementarities between coal workers' skills and RES industry occupations?
4. What are the knowledge and skills required by coal workers to increase their re-employability in the RES industry following the (permanent) shutdown of coal-driven activities?
5. How tailored to the specific needs of coal workers wishing to make the transition to RES sector jobs is the current supply of VET training offerings?

The primary methods to collect data will be a combination of a survey and desk research. Secondly, in case these two methods fail to produce adequate results, interviews will be conducted to supplement the data.

Figure 2: Data collection methods to be used



<sup>1</sup> Formal education is linked with schools and training institutions; non-formal with community groups and other organisations; and informal covers what is left, e.g. interactions with friends, family and work colleagues.





## 2.2 Survey (assessing coal worker's current skills)

### 2.2.1 Data collection tool (online questionnaire)

The survey aims to collect data on the current skill set of coal workers as well as the skills that they will need to improve their employability in the RES sector in relevant job positions. A structured questionnaire (Annex A) will be the main tool for data collection. The questionnaire will be used to establish a structured, organised and well documented way to collect expert opinions. A web-based approach will be employed for reasons of practicality and to facilitate the coding and analysis processes.

The questionnaire is structured in a clear and simple manner to encourage participation and facilitate communication with target groups. Direct communication (by e-mail or phone) with survey respondents could also take place so as to establish an initial contact, allowing to ask for additional evidence or clarifications on workplace requirements when building with wood.

The survey questionnaire comprises mostly closed-ended questions as they are easier and quicker for respondents to answer and they offer better coding, analysis and comparison possibilities. Open questions are included to obtain data on points that may have been omitted by the close-ended questions.

To ensure consistency and facilitate data analysis, the questionnaire is developed in English. Where feasible, and in cases where communication can only be established in national language(s), project partners may translate both the questionnaire and responses (in case of additional comments, communication etc.).

The questionnaire will begin with a short introduction that will include information on the purpose of data collection, to assure that respondents understand clearly how to contribute to building shared knowledge in the field. The main sections of the questionnaire are the following: a) Respondent profile, b) Assessment of coal workers' current knowledge and skills, and c) Assessing the complementarity and mismatches of coal workers to RES sector blue collar & technical occupations.

The questionnaire is expected to be completed online in the following link: **The URL will be provided here after the questionnaire has been reviewed from partners and has been finalised.**

**Important notice:** Partners shall protect personal data and respect privacy, in full compliance with the provisions of the applicable EU legislation ("General Data Protection Regulation"). This means that the survey shall be communicated to target groups and stakeholders through emails to those subscribed in partners' contact lists, emails to generic business email addresses (e.g. enquiry@ or info@), and posts in project's, partner organisations' (incl. affiliates) and third parties' social media and websites.

### 2.2.2 Survey target groups

According to the research questions of the survey, the target respondents should include individuals:

- With work experience in the coal and/or RES sectors,
- Familiar with the assessment of the skills and work experiences of coal workers, and



- Familiar with the latest developments/aware of the workplace requirements for blue collar and technical jobs in the RES sector.

Thus, the target population of the survey includes the following list:

- **Coal & RES industry executives**
  - Site directors, managers
  - Team leaders (e.g. power plant, mines, wind fields)
  - Head of in-house training departments
  - Workplace trainers / mentors
  - Senior / experienced coal workers
  - Employers
  - Contractors
- **VET providers**
  - Providers offering / course designers / instructors on re-orientation opportunities for coal workers
  - Providers offering / course designers / instructors on courses for employment in the RES sector (e.g. for technicians)
- **Social partners**
  - Development agencies with a mandate to assist in coal phase-out
  - Coal workers' association representative / board members
  - Institutes monitoring employment trends and skills
- **Field experts in the mining & RES sectors**
  - Academics
  - Researchers

### 2.2.3 Sampling

The RES-SKILL Application Form foresees that the sample is to be drawn from the countries represented in the project consortium: Greece, Austria, Romania, Germany, Bulgaria, and Poland. Participation from other EU countries is welcome and shall be pursued as well. The distribution of answers among the project partners takes into consideration three factors:

- Partners' type of organisation (e.g. association, VET provider)
- Partnership countries' number of current direct coal-related jobs
- Partners' capacity to reach stakeholders, as demonstrated from their participation / access to relevant networks and associations

*Table 2: Factors that determine responses' contribution among project partners*

Partner	Country	Coal jobs*	Access to target groups
PROMEIA	GR	6 500	High



BFI	AT	500	High
LTT	RO	18 600	High
RENAC	DE	37 700	High
SZREDA	BG	14 500	High
MEERI	PO	112 500	High

*\*Source: JRC report, EU coal regions: opportunities and challenges ahead, 2018, pp. 21.*

To secure a critical mass of data that will enable the partnership to proceed with the identification of skills requirements, the minimum number of questionnaires to be gathered by relevant stakeholders across the partnership is 150. Taking into consideration that not all factors are quantified, the target number of responses per consortium country and project partner is indicative. However, an increased number of answers would be desirable for the successful development of the RES-SKILL learning outcomes.

A suggested target number of answers per consortium country and project partner is presented in the following table.

*Table 1: Target number of responses per consortium country and project partner*

Partner	Country	Target number
PROMEA	GR	20-30
BFI	AT	25-35
LTT	RO	25-35
RENAC	DE	30-40
SZREDA	BG	20-30
MEERI	PO	30-40
<b>TOTAL</b>		<b>150 - 210</b>

**Work allocation:** PROMEA provides the questionnaire survey in an online form; all partners will translate the questionnaire in own language (if required) and distribute it to relevant target groups in their countries.



### 2.3 Desk research (assessing skill demand)

Desk research will be carried out to collect information on the in-demand RES sector skills in relation and against the current coal worker's skill set (blue collar, low-skilled, technical jobs) and their supply in the partnership countries' VET education. The purpose is to supplement the evidence gathered through the survey and, additionally, identify trends in skill supply. In particular, it will help to define the level of skills needed by the RES labour market, to compare it with the coal workers' existing skill set, to determine the skills mismatches and complementarities.

The rationale is that existing RES sector training provision can act as a proxy measure of skill demand and supply in the RES labour market. Nevertheless, course offerings can only "signal" skills and competences, which does not necessarily mean that individuals do possess these skills or this is the only way to acquire relevant skills and competences. Nevertheless, given the complexity of the coal workers' re-orientation landscape and the dynamics in the labour market, information on existing academic and commercial training courses can provide valuable insights into the available skill supply while revealing labour market mismatches and imbalances.

The desk research will focus on:

1. RES sector workplace/skills requirements for blue collar / technical workers; data will be collected from sources such as online/offline job vacancies, studies of skill authorities and awarding bodies.
2. RES-related (re)training programmes for low-skilled / technical / blue collar jobs; data will be collected from sources such as vocational and online course directories (e.g. [academiccourses.com](http://academiccourses.com)), academic journals and publications, study guides, learning materials, college brochures.

A common approach is employed for documenting information on existing training programs. The reporting forms is presented in Annex C. Project partners should complete the desk research reporting forms in English and deliver them in an editable format (e.g. WORD file) to the O1-T2 Activity Leader (i.e. LTT).

#### **Target**

Each partner is expected to identify at least 5 VET training offerings and LTT, in particular, at least 15, ideally addressed to or including coal workers, and 5-10 job descriptions/vacancies on blue collar jobs in the RES industry.

**Work allocation:** PROMEA provides the documentation forms for desk research; all partners will collect data; LTT will specifically research relevant RES sector C-VET offerings and will compile the data collected from partners.



## 2.4 Interviews

Semi-structured interviews will be launched in case the online survey and the desk research fail to provide adequate data and fail short on data collection targets. In this case, the rationale is that interviews can help to complement data collection with in-depth qualitative information, providing increased flexibility and allowing for more detailed answers from respondents. This will include the collection of experience-based views and perceptions from relevant experts (e.g. RES employers). The target audience to participate in the interviews are the same as with the online survey.

Project partners, who will opt to conduct semi-structured interviews, are requested to report the main points and conclusions derived from interviews, using the dedicated form in Annex D as appropriate. Each partner needs to complete the form in English and send it by email to the O1-T2 Task Leader (LTT).

Detailed guidelines for conducting the interviews are available in Annex D, titled “Interview Guide”, including advice on how to conduct the interviews, the questions to use and the summary reporting form.



## 2.5 Research stages and KPIs

The data collection will be implemented in three stages to guarantee the collection of adequate evidence:

### Stage A: Online survey

- Create a list of relevant stakeholders to take part in the survey
- Translate the online questionnaire in partners' languages
- Select promotional channels to reach target respondents
- Contact stakeholders to communicate the nature of the survey
- Collect completed questionnaires

### Stage B Interviews (\*optional or if deemed necessary)

- Identify potential interviewees
- Communication with representatives of col and RES industry companies & VET institutes
- Carry out interviews
- Prepare summary reports, presenting the conclusions of interviews

### Stage C: Desk research

- Identify relevant sources of information
- Literature review
- Fill-in reporting form

To ensure the quality of data collection and results, it is pertinent for all partners to have a clear perception of research objectives as well as accepted quality assurance considerations. The following Table summarises the indicative key performance indicators (KPIs) that have been set to guide data collection and evaluate the achievement of activity goals per partner.



Table 3: Key Performance Indicators (KPIs) per partner

Partner	Online questionnaire	Desk research	Interviews
<b>PROMEA</b>	20-30 completed questionnaires	5 VET offerings from own country 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>BFI</b>	25-35 completed questionnaires	5 VET offerings from own country 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>LTT</b>	25-35 completed questionnaires	15 VET offerings from own country & EU-27) 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>RENAC</b>	30-40 completed questionnaires	5 VET offerings from own country 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>SZREDA</b>	20-30 completed questionnaires	5 VET offerings from own country 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>MEERI</b>	30-40 completed questionnaires	5 VET offerings from own country 5-10 relevant job offerings	Optional/upon request if partner underperforms in online survey
<b>TOTAL</b>	<b>150-210 completed questionnaires</b>	<b>40 VET offerings 30-60 relevant job offerings</b>	<b>1-3 reports per partner if requested</b>



### 3 Elaborating the RES-SKILL learning outcomes

#### 3.1 Learning outcomes based on the European Qualifications Framework

The **European Qualification Framework (EQF)** is the common European reference framework, which connects countries' qualifications systems increasing the transparency of qualifications throughout Europe. It acts as a translation device to make national qualifications more readable and comparable across Europe, aiming to promote workers' and learners' mobility between countries and facilitate their lifelong learning.

In particular, the EQF relates different countries' national qualifications systems and frameworks together around a common European reference – its eight reference levels based on “**learning outcomes**” (defined in terms of knowledge, skills and competences). This approach shifts the emphasis from input (type and duration of learning experience) to actual learning i.e. to what a person is able to do upon the completion of a learning process. By shifting the focus to learning outcomes, the EQF manages to:

- Match the needs of the labour market with education and training offerings;
- Facilitate the transfer and use of qualifications across different countries and education and training systems;
- Enable the validation of non-formal and informal education;
- Transfer units of learning outcome, based on a credit system (ECVET).

The development of national qualifications frameworks with descriptors based on learning outcomes is a step towards making qualifications and levels of learning explicit for all users. According to the EQF, “*learning outcome*” is defined as a statement of what a learner knows, understands and is able to do upon the completion of a learning process. Furthermore, learning outcomes are used as a basis for credit transfer and accumulation (ECVET) and are specified in three categories dimensions (descriptors) – as knowledge, skills and competence, which can be described as follows:

- **Knowledge:** The outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices related to a field of work or study. According to the EQF, knowledge is described as theoretical and/or factual.
- **Skill:** The ability to apply knowledge and use know-how to accomplish tasks and resolve problems. According to the EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical skills (involving manual dexterity and the use of methods, material tools and instruments).
- **Competence:** The proven ability to use knowledge, skills and attitudes, in work in study situations and in professional and personal development. According to the EQF, competence is described in terms of responsibility and autonomy.

#### 3.2 Practical instructions on how to formulate the RES-SKILL learning outcomes

The following instructions are intended to support project partners in applying the learning outcomes-oriented EQF-ECVET approach for the design of RES-SKILL curriculum and course.

##### What are the key characteristics of learning outcomes?





When formulating learning outcomes, a number of important aspects should be considered to ensure that the developed learning outcomes are understandable and consistent with the EQF standards.

1. Learning outcomes should refer to qualifications, not to individual learners' specific development of skills and competence. This is because learning achievements may vary from learner to learner considering the different levels of progress and skill development. Consequently, when learning outcomes are to be described, they should refer on the learning achievements of an average learner.
2. Learning outcomes should be student-centred. Learning outcomes need to be described in such a way that their focus is on the onus of the learner and not on the teacher or the objectives that the curriculum needs to achieve.
3. All learning outcomes should be externally verifiable and measurable. They should be formulated in such a way that an evaluation process can be employed to determine whether the learner has actually achieved the learning outcomes. Moreover, orienting learning outcomes towards occupational activities and tasks makes it easier to determine assessment criteria.
4. Learning outcomes should refer to what the student knows and is able to do at the end of the learning process. In other words, learning outcomes should not describe the learning path or activity but the outcome following the completion of a learning process.
5. The type of learning methods and processes used to accomplish specific learning outcomes are not relevant with the description of learning outcomes.
6. There should be as many learning outcomes as needed to clearly reflect what students will learn from the course.
7. Each learning outcome statement should have a single primary purpose rather than a dual or compound purpose. A dual outcome may be problematic if a student demonstrates achievement in one area but not in another. In such a case, it is better to formulate two distinct learning outcomes.

### How are good learning outcomes formulated?

- **Use active, clearly comprehensible verbs:** It should be ensured that active verbs (e.g. "explain", "develop", "select", "analyse") will be used in the formulation of learning outcomes. Such verbs should describe measurable and observable actions and tasks and can be supplemented and combined with sector specific verbs. Ambiguous verbs such as "to be familiar with" should be avoided. Table 7 provides a list of active verbs that can be used for the descriptors of knowledge, skills and competence.
- **Specify and contextualise the active verb:** Learning outcomes should be specified and contextualized in terms of what the knowledge and ability refer to. The formulation of learning outcomes should consist of a verb and the related object as well as an additional sentence describing the context.
- **Avoid vague and indefinite formulation:** Learning outcomes should be neither too general that they become indistinct nor too concrete so that modules becoming inflexible. Simple and unambiguous terminology that is easily comprehensible to learners should be used. Academic jargon should be avoided. Last, learning outcomes should not contain evaluating words such as "good", "simple", "efficient", "successful" etc.
- **Set minimum requirements** for achieving learning outcomes: Learning outcomes should comprehensibly describe the minimum demands for achieving/validating a unit of learning outcomes,



i.e. all learning outcomes which are necessary for fulfilling the tasks in the sense of a complete vocational activity should be listed.

Table 4: List of active verbs

<b>List of active verbs</b>	
<b>Knowledge</b>	Arrange, define, describe, duplicate, identify, label, list, name, match, memorise, outline, order, select, determine, present, have knowledge of, gather, classify, explain, write, recognise, measure, emphasise, repeat, report, know, state, reproduce, recall, relate, recognize, etc.
<b>Skills</b>	Draft, infer, analyse, alter, apply, argue, assemble, itemise, split, demonstrate, express, choose, influence, substantiate, provide examples, name, report, describe, designate, judge, assess, present, diagnose, discuss, illustrate by example, conduct, classify, categorise, assign, discover, design, develop, elucidate, recognise, explain, calculate, compile, expand, tell, manufacture, evaluate, produce, find, conclude, formulate, contrast, devise, generate, question, indicate, identify, illustrate, integrate, interpret, clarify, criticise, teach, praise, solve, modify, rearrange, recreate, rewrite, use, arrange, organise, plan, practice, justify, regulate, represent, collect, create, appreciate, deduce, write, refer to, structure, synthesise, divide, separate, test, translate, shape, rephrase, outline, paraphrase, differentiate, investigate, subdivide, transform, visualise, connect, compare, verify, defend, utilise, predict, prepare, display, project, suggest, select, appraise, show, summarise, etc.
<b>Competence</b>	Lead a team, instruct trainees, act independently, monitor work processes, assume responsibility, etc.

### **How should the learning outcomes and units be described in RES-SKILL?**

To ensure compatibility with EQF standards, the RES-SKILL learning outcomes should be described “**holistically**” in the context of a coherent description as a matrix, subdivided into individual elements of knowledge, skills and competence. This description mode is clearly structured as regards the subsequent assessment of learning outcomes and enables the comparison with the respective national curricula. The title of the unit of learning outcomes should be clear and comprehensible and reflects the content of the unit. Table 5 gives an example of how learning outcomes should be described following the above instructions.



Table 5: Example of describing a RES-SKILL learning outcome

Learning unit	Knowledge of the safety considerations & protocols in the RES industry		
Learning outcomes			
Knowledge		Skills	Competences
Knows/Aware of:		Able to:	Able to:
<b>Learning outcomes correspond to EQF Level 4</b>	<ul style="list-style-type: none"> <li>- Relevant equipment, policies, procedures, and strategies for the protection of people, property, and institutions.</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct tests and inspections of products, services, or processes to evaluate quality or performance.</li> <li>- Perform routine maintenance on equipment and determining when and what kind of maintenance is needed.</li> </ul>	<ul style="list-style-type: none"> <li>- Deal calmly and effectively with high stress situations</li> <li>- Be sensitive to others' needs and wellbeing and are understanding and helpful on the job.</li> </ul>



## 4 Implementation time plan

The implementation of the first Intellectual Output (O1) comprises the following tasks in chronological order.

*Table 6: O1 Implementation timetable*

<b>Deliverable/Activity</b>	<b>Partner</b>	<b>Delivery date</b>
Preparation and drafting of research methodology and guidelines (O1-T1)	PROMEA	30 <sup>th</sup> October 2020
Provision of feedback on methodology	BFI / LTT / RENAC / SZREDA / MEERI	6 <sup>th</sup> November 2020
Fine-tuning of methodological tools and guidelines in EN	PROMEA	11 <sup>th</sup> November 2020
Translation of information collection tools in own language (if necessary)	ALL PARTNERS	18 <sup>th</sup> November 2020
Data collection in own country (O1-T2)	ALL PARTNERS	18 <sup>th</sup> December 2021
Compilation of collected information from all partners (O1-T2)	LTT	31 <sup>st</sup> December 2021
Analysis of evidence gathered & drafting the learning outcomes report (O1-T3)	RENAC	12 <sup>th</sup> February 2021
Social / sectoral validation of learning outcomes & fine-tuning (O1-T4)	RENAC	24 <sup>th</sup> March 2021



## ANNEX A: Survey questionnaire

The survey questionnaire will be completed online in the following link:

<https://ec.europa.eu/eusurvey/runner/RESSKILLSurvey2020>

This is an editable form of the survey questionnaire, provided for feedback/fine-tuning purposes.



### RES-SKILL - Reskilling coal industry workers for the renewables energy sector

#### What is the purpose of the survey?

Given the EU's ambition to transform its energy system and become carbon neutral by 2050, coal jobs are expected to face a sharp decline in the following years. However, renewable energy economy shows the potential to create more jobs than currently exist in the coal sector.

The purpose of this survey is to determine the set of skills, knowledge, and competences required by coal workers to transition to similar-profile renewable (RES) sector jobs. Your input will aid to the development of a freely available online retraining course that will cater specifically to the transition of coal workers to the renewable sector.

#### Who should participate?

- Employers in the coal & RES sector
- VET providers offering courses for coal workers & in the renewable energy sector
- Senior managers and employees from the renewable energy sector
- Heads of trainer departments and workplace trainers for renewable energy applications (e.g. wind and solar PV)
- Social partners, sector representatives and coal workers' representatives (e.g. members of professional associations)
- Field experts, academics, and researchers.

#### How long does it take?

Less than 15 minutes!

*Thank you very much in advance for your participation and valuable contribution!*



*All respondents (that also provide their email) will enjoy early access to RES-SKILL learning course.*

## **A. RESPONDENT PROFILE**

A1. Name:

A2. Organisational affiliation (if applicable):

A3. Position / organisational affiliation (please choose one of the following):

- Site director / manager in the coal or renewable industry
- Team leader (e.g. power plant, mines, wind fields)
- Head of in-house training department in coal or renewable industry
- Workplace trainer / mentor in coal or renewable industry
- Senior / experienced coal worker in coal or renewable industry
- Employer in coal or renewable industry
- Contractor in coal or renewable industry
- Recently transitioned from coal to RES sector industry as (please specify position below)
- VET provider offering / course designers / instructors on re-orientation opportunities for coal workers
- VET provider offering / course designers / instructors on courses for employment in the RES sector (e.g. for technicians)
- Development agency with a mandate to assist in coal phase-out
- Coal workers' association representative / board member
- Researcher monitoring employment trends and skills
- Field expert / academic in the mining or renewable energy sector
- Other (please specify):

A4. Years of professional experience (please choose one of the following):

- No experience / < 1 year
- 1-3 years
- 4-7 years
- >8 years

A5. Country:

A6. Email (optional):

## **B. ASSESSMENT OF COAL WORKERS' CURRENT KNOWLEDGE AND SKILLS**

**B1. In your experience, to what extent are coal workers already knowledgeable in the following areas? (please rate from 'very low' to 'very high')**



<i>Mechanics - Knowledge of machines and tools, including their designs, uses, repair, and maintenance</i>	Choose an item.
<i>Computers and Electronics - Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and basic programming</i>	Choose an item.
<i>Building and Construction - Knowledge of materials, methods, and the tools involved in the construction or repair of various infrastructures</i>	Choose an item.
<i>Public Safety and Security - Knowledge of relevant equipment, policies, procedures, and strategies for the protection of people, property, and institutions</i>	Choose an item.
<b>B2. In your experience, to what extent do coal workers already have the following technical skills? (please rate from 'very low' to 'very high')</b>	
<i>Operation and Control - Controlling operations of equipment and/or systems (e.g. drilling)</i>	Choose an item.
<i>Operation Monitoring - Watching gauges, dials, or other indicators to make sure a machine is working properly</i>	Choose an item.
<i>Quality Control Analysis - Conducting tests and inspections of products, services, or processes to evaluate quality or performance</i>	Choose an item.
<i>Equipment Selection - Determining the kind of tools and equipment needed to do a job</i>	Choose an item.
<i>Systems Evaluation - Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system</i>	Choose an item.
<i>Systems Analysis - Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes</i>	Choose an item.
<i>Equipment Maintenance - Performing routine maintenance on equipment and determining when and what kind of maintenance is needed</i>	Choose an item.
<i>Repairing - Repairing machines or systems using the needed tools</i>	Choose an item.
<b>B3. In your experience, to what extent do coal workers already have the following non-technical/soft skills? (please rate from 'very low' to 'very high')</b>	
<i>Practical thinking - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems</i>	Choose an item.
<i>Troubleshooting - Determining causes of operating errors and deciding what to do about it.</i>	Choose an item.
<i>Spatial awareness - Being aware of others' reactions in relation to their environment and understanding why they react as they do</i>	Choose an item.
<i>Coordination - Adjusting actions in relation to others' actions</i>	Choose an item.
<i>Judgment and Decision Making - Considering the relative costs and benefits of potential actions to choose the most appropriate one</i>	Choose an item.





<i>Instructing - Teaching others how to perform routine tasks</i>	Choose an item.
<i>Dependability - Are reliable, responsible, and dependable, fulfilling obligations</i>	Choose an item.
<i>Adaptability - Are open to change (positive or negative) and to considerable variety in the workplace</i>	Choose an item.
<i>Persistence - Are persistent in the face of obstacles</i>	Choose an item.
<i>Stress tolerance - Dealing calmly and effectively with high stress situations</i>	Choose an item.
<i>Concern for others - Are sensitive to others' needs and wellbeing and are understanding and helpful on the job</i>	Choose an item.
<b>B4. In your experience, what additional knowledge and skills (technical and soft), other than those discussed above, do coal workers have?</b>	
<b>C. ASSESSING THE COMPLEMENTARITY AND MISMATCHES OF COAL WORKERS TO RES SECTOR BLUE COLLAR AND TECHNICAL OCCUPATIONS</b>	
<b>C1. In your experience, to what extend do coal workers need additional training in the following knowledge areas, if they want to transition to blue collar/technical jobs in the renewable energy sector? (please rate from 'not at all' to 'extensive training')</b>	
<i>Mechanics - Knowledge of machines and tools, including their designs, uses, repair, and maintenance</i>	Choose an item.
<i>Computers and Electronics - Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and basic programming</i>	Choose an item.
<i>Physics - Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding material and atmospheric dynamics, and mechanical, electrical structures and processes.</i>	Choose an item.
<i>Building and Construction - Knowledge of materials, methods, and the tools involved in the construction or repair of various infrastructures.</i>	Choose an item.
<i>Design - Knowledge of design techniques, tools, and principals involved in production of precision technical plans, blueprints, drawings, and models.</i>	Choose an item.
<i>Education and Training - Knowledge of principles and methods for teaching and instruction for individuals and groups, and the measurement of training effects</i>	Choose an item.
<i>Mathematics - Knowledge of arithmetic, algebra, geometry, calculus, and their applications</i>	Choose an item.
<i>Public Safety and Security - Knowledge of relevant equipment, policies, procedures, and strategies for the protection of people, property, and institutions</i>	Choose an item.





**C2. In your experience, to what extent do coal workers need to acquire the following technical skills, if they want to transition to blue collar/technical jobs in the renewable energy sector? (please rate from ‘not at all’ to ‘extensive training’)**

<i>Operation and Control - Controlling operations of equipment and/or systems</i>	Choose an item.
<i>Operation Monitoring - Watching gauges, dials, or other indicators to make sure a machine is working properly</i>	Choose an item.
<i>Quality Control Analysis - Conducting tests and inspections of products, services, or processes to evaluate quality or performance</i>	Choose an item.
<i>Equipment Selection - Determining the kind of tools and equipment needed to do a job</i>	Choose an item.
<i>Systems Evaluation - Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system</i>	Choose an item.
<i>Systems Analysis - Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes</i>	Choose an item.
<i>Equipment Maintenance - Performing routine maintenance on equipment and determining when and what kind of maintenance is needed</i>	Choose an item.
<i>Repairing - Repairing machines or systems using the needed tools</i>	Choose an item.

**C3. In your experience, to what extent do coal workers need to acquire the following non-technical skills, if they want to transition to blue collar/technical jobs in the renewable energy sector? (please rate from ‘not at all’ to ‘extensive training’)**

<i>Practical Thinking - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems</i>	Choose an item.
<i>Troubleshooting - Determining causes of operating errors and deciding what to do about it.</i>	Choose an item.
<i>Spatial awareness - Being aware of others' reactions in relation to their environment and understanding why they react as they do</i>	Choose an item.
<i>Coordination - Adjusting actions in relation to others' actions</i>	Choose an item.
<i>Judgment and Decision Making - Considering the relative costs and benefits of potential actions to choose the most appropriate one</i>	Choose an item.
<i>Instructing - Teaching others how to perform routine tasks</i>	Choose an item.
<i>Dependability - Are reliable, responsible, and dependable, fulfilling obligations</i>	Choose an item.
<i>Adaptability - Are open to change (positive or negative) and to considerable variety in the workplace</i>	Choose an item.



<i>Persistence - Are persistent in the face of obstacles</i>	Choose an item.
<i>Stress Tolerance - Dealing calmly and effectively with high stress situations</i>	Choose an item.
<i>Concern for others - Are sensitive to others' needs and wellbeing and are understanding and helpful on the job</i>	Choose an item.
<b>C4. In your experience, what additional knowledge and skills (technical and non-technical), other than those discussed above, do coal workers need to have if they want to transition to renewable energy blue collar &amp; technical occupations?</b>	
<div style="border: 1px solid black; height: 40px;"></div>	
Would you like to receive more information about RES-SKILL project and its results? This will allow you to have early access to training materials and toolkit!	
<ul style="list-style-type: none"><li>- Yes</li><li>- No</li></ul>	



## ANNEX B: Invitation e-mail

Subject: RES-SKILL project – Invitation to participate in a survey for the retraining needs of coal workers

Dear Sir/Madam,

We would like to invite you to take part in a survey on the most needed skills for coal workers to transition to renewable energy blue collar and technical jobs.

With Europe embarking on an energy transition based on clean energy, efficiency and innovation, the decarbonisation of the EU-27 is expected to result in the loss of approximately 76 000 jobs in coal mines and plants until 2025; the number is expected to double, with more than 154 000 job losses projected until 2030. To assist EU countries and regions for a just clean energy transition, RES-SKILL focuses on the reskilling of coal workers, to strengthen their employability in the clean energy market.

We consider your help, as a stakeholder/expert in the coal and/or renewable energy sector, vital in identifying the most valued skills for coal worker's transition to the renewable energy sector. Your contribution will assist us to develop a modular learning syllabus that will be made freely available to the public in 2021/2.

The survey takes around 10-15 minutes to complete and will be open until 18 December 2020.

Click here to participate [{Insert the link of the online questionnaire}](#)

In case of any difficulties / enquiries please do not hesitate to address them to: [{email account to be used by each partner – e.g. \[info@promea.gr\]\(mailto:info@promea.gr\)}](#)

Thank you very much for your contribution.

### Signature:

The RES-SKILL project is being funded under the Erasmus+ programme of the European Union. It aims to deliver a modular learning syllabus and retraining toolkit for coal workers that want to transition to renewable energy sector jobs.

If you do not wish to participate in this survey and don't want to receive any more invitations, please send an e-mail with subject "Unsubscribe from RES-SKILL list" to [{email account to be used by each partner}](#)



## ANNEX C: Desk research reporting form

Data collection forms for presenting information gathered via desk research. Please make as many copies of the tables as needed.

Desk research form for VET offerings	
VET offering title:	
Qualification Level	
Training Provider	
Country	
Type of course	<input type="checkbox"/> Standalone apprenticeship course <input type="checkbox"/> Vocational course with integrated apprenticeship period
Duration	
Scope of course	[e.g. to obtain a diploma / up-skilling / retraining]
Target audience information	[Description of participants, e.g. age of participants, I-VET or C-VET, relevant professional groups]
Core Modules & Topics addressed	
Knowledge/skills/competences (to be) obtained upon the completion of training	
Source	(link)

Desk research form for job listings	
Job title	
Location & country	
Description	
Type	[e.g. full-time, part-time, freelance]
Qualification Level	[if mentioned]
Employer	



Knowledge required	- ... - ... - ...
Technical skills required	- ... - ... - ...
Non-technical / soft skills required	- ... - ... - ...
Source	(link)



## **ANNEX D: Interview guide & reporting form**

### **Guidelines for conducting the interviews**

1. Get prepared for the interview. Be sure about the type of information you want to obtain through the interview and to whom you are going to speak. Before the interviews, partners should collect basic facts about the interviewee's professional profile.
2. Inform the interviewee about the scope of the survey and the means you will use to record his/her views.
3. Choose the most appropriate methods to record interviewees' answers. Recording answers can be done by taking notes, audio or video recording. Taking notes allows the interviewer to record the most critical points from the discussion, while making the production of the final report easier as there is no need to go through large files of transcripts.
4. Build a rapport with the interviewee. It is important to use words and actions that will make the respondent feel welcome and give him the desire to commit to the discussion, in order to gain the interviewee's confidence and get useful insights about the topic under investigation. To build a rapport, you can also conduct the interview in a comfortable and open space, offer amenities to the interviewee, and inform the interviewee when the results will be published and how he/she can have access to them.
5. Ask questions that lead to targeted answers. Phrase questions in a way that you will receive detailed answers rather than a simple "Yes" or "No". It is recommended that you focus on the aspects that you have not managed to retrieve sufficient information during the stage of desk research. Keep in mind that the purpose of the interviews is to find out the areas that coal workers will need retraining, to be employed in the RES sector blue collar and technical jobs.
6. It is important to know when you must end the interview. This may occur the time you understand that the interviewer feels tired with the process or he/she does not provide any new information. A good practice is to summarise the key points and provide the respondent with a last opportunity to complement/expand or clarify any already mentioned points.

Upon the completion of interviews, project partners need to prepare a summary report, presenting the answers provided by respondents and highlighting the main conclusions drawn from the discussion.

### **Structure and Questions**

Instructions: Let the interviewee tell his/her story in each section and use the follow-up questions below as probes.<sup>2</sup> Upon the completion of interviews, prepare a summary report

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<sup>2</sup> Interview probes: An important part of interviewing is following up on things people tell you. Your initial question opens the door to an issue, and your interviewee's response is a first draft of an answer to your question. One that draft is on the table, you need to ask more questions to get the full story.



presenting the answers provided by interviewees and highlighting the main conclusions drawn from the discussion.

1. Do you think that coal workers, if properly retrained, could transition to the RES sector and fill-in adequately blue collar and technical jobs?  
Probe: Why? What barriers could they face in terms of skills mismatch?
2. Do you think that the demand for workers in the RES industry could potentially offset the number of jobs lost from the decarbonisation of the EU?  
Probe: Why is this the case?
3. Can you describe the usual job profile of a blue collar worker or a technician in the RES industry?  
Probe: What should educational level should he/she have? Which technologies should he/she be able to apply?
4. What kind of knowledge, skills, and competences are in-demand today for blue collar and technical jobs in the RES industry?  
Probe: How important is the use of RES-specific technologies?

Thank you for your time. Do you have any questions that you would like to ask of me?

**Summary reporting form**

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**Summary report of the interview**

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**Part A: Information about the interview**

Name and position:	
Organisation and type of organisation:	
Contact details of the interviewee (email and/or telephone number):	
Date and location:	



RES-SKILL partner organisation  
conducting the interview:

**Part B: Main conclusions**

**Please describe the main points of interviewee’s replies in relation to the following topics:**

<p>1. Coal worker’s fit for the RES industry and RES-related blue collar / technical occupations</p>	<p>Click here to enter text.</p>
<p>2. Demand for blue collar / technical workers in the RES sector</p>	<p>Click here to enter text.</p>
<p>3. Occupational profile of workers in the RES industry</p>	<p>Click here to enter text.</p>
<p>4. Most in-demand skills of workers in the RES industry</p>	<p>Click here to enter text.</p>

**Please note any additional important information drawn from interview:**

- ...
- ...
- ...