Work Plan Subtask 2

IEA TCP IETS Task XIX
Industrial Electrification

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Manager Subtask 2 of Task 19

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Table of Contents

1. About IEA, TCP IETS and their Tasks

The International Energy Agency (IEA) is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA has four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.

There are no quick fixes to long-term energy challenges. To find solutions, governments and industry benefit from sharing resources and accelerating results. For this reason, the IEA enables independent groups of experts - the IEA Technology Collaboration Programmes, or IEA TCPs (formerly known as Implementing Agreements).

Through the Technology Collaboration Programme, the IEA provides a framework for more than 40 international collaborative energy research, development and demonstration projects. It enables experts from different countries to work collectively and share results, which are usually published. The programme deals with technologies for fossil fuels, renewable energy, efficient energy end-use and fusion power, as well as electric power technologies and technology assessment methodologies.

The IEA TCP on Industrial Energy-Related Technologies and Systems (IETS), founded in 2005, is dealing with new industrial energy technologies and systems.

The mission of IETS is to foster international cooperation among OECD and non-OECD countries for accelerated research and technology development of industrial energy-related technologies and systems. In doing so, IETS seeks to enhance knowledge and facilitate deployment of cost-effective new industrial technologies and system layouts that enable increased productivity and better product quality while improving energy efficiency and sustainability.

Through its activities, IETS will increase awareness of technology and energy efficiency opportunities in industry, contribute to synergy between different systems and technologies, and enhance international cooperation related to sustainable development.

The principal work of IETS is about identifying, observing, following and sharing work among countries and their organisations and industry clusters. This is done through defined projects, so called Tasks, in which experts from countries who choose to take part form a working group with an Task Manager in charge of coordinating. For more information, please refer to the IETS website.

2. Task Industrial Electrification

Task 19 Industrial Electrification is a new Task of the IETS-TPC program. The Task aims to be a platform for enhancing collaboration between countries in the area of industrial electrification.

The focus of the Task is on the system aspects of industrial electrification rather than on the technologies within each specific pathway or process. As such, the Task aims to foster the creation of “critical mass” in the area of industrial electrification.

Subtask 1 of this Task is finalized in the beginning of 2021 by Delft University of Technology. The result is the mapping of activities, scoping and formulation of a multiyear collaboration plan. This document will further detail the work of Subtask 2 of the Task.

3. Background

The global commitment to keep global temperature rise well below 2°C, and preferably below 1.5°C, requires deep GHG emissions reductions throughout all sectors of the economy. For the industrial sector, whose direct CO_2 emissions currently account for about 25% of global energy-related and process CO_2 emissions[1] this commitment implies a reduction of direct GHG emissions of 80% by 2050[2]. The industrial sector is complex, diverse and contains numerous emission sources as it encompasses all activities related to the processing of raw materials into final products (including the use or production of intermediates).

There has been an increasing number of studies looking into potential options to reduce GHG emissions in the industrial sector, ranging from technological improvements in specific processes to the development of mitigation roadmaps encompassing the entire industrial sector. Proposed mitigation options include energy-efficiency, switching to alternative energy and feedstock sources (*e.g.,* renewable electricity, geothermal heat, biomass, waste), increased recycling and reuse, and carbon capture, utilization and storage (CCUS). An option that is gaining relevance is increasing direct and indirect electrification of energy demand. This is (partly) driven by the increase penetration and of low carbon electricity (mostly from renewables) and the need to decarbonize a hard to abate sector.

In the transition to a sustainable CO_2-free society, there is the need to provide with low carbon energy to different sectors of the economy such as industry, built environment and mobility. The power sector is at the forefront of the transition to a sustainable energy system with wind and solar power growing rapidly. Technological developments are further increasing efficiency and lowering the cost price of electricity from wind turbines and solar panels. In contrast, the industrial sector still highly depends on fossil sources for energy purposes and feedstocks, and the use of renewable electricity is not straight forward. This therefore implies understanding new technologies, and the impacts of those at the industrial sector level. This also implies the need to understand the interactions and impacts from other sectors. Sector coupling is key to harvest this opportunity.

If direct electrification (i.e. for industrial raw materials) is not possible or feasible, electricity can be converted to a an energy carrier such as hydrogen (and carriers such as ammonia, methanol) which can be used both as energy or feedstock which we call indirect electrification from here on. Electrification of the industrial sector has been identified as a key option in several EU research/innovation agendas at national level, for instance, in Sweden, the Netherlands and Germany. These agendas, as well as studies examining the potential of electrification in Europe and in other countries, indicate a high overall technical potential for industrial electrification. Literature also indicates significant potential co-benefits of industrial electrification, including benefits in energy security (increasing the use of local resources and fostering decentralization), air quality (by eliminating on-site fuel consumption), process improvements (through for instance increasing process controllability and efficiencies), and grid support to renewable power systems (e.g., by providing power operators with greater control over load shapes). It is, however, recognized that although many of the essential technological elements for industrial electrification already exist (for instance, McKinsey[3] recently estimated that almost 50% of the fuel consumed for energy can be electrified with current available technology), the large diversity of processes and high levels of process integration required make solutions very complex. Significant challenges exist in cost and engineering development as well as barriers in investment and infrastructure requirements, and further technological development to reduce costs. In order to decarbonize sectors, the amount of renewable electricity that is generated (supply) must keep pace with demand from electrification. At the same time, consumption in the end sectors (demand) will boost the demand for renewably generated electricity, so developers of wind and solar

[1] IPCC 1,5 Report chapter 2
[2] IPCC 1,5 Report chapter 2
[3] McKinsey & Company (2020) Plugging in: what electrification can do for industry. Energy Insights Practice

parks have to continue investing in new capacity. The impact of electrification on energy supply and demand needs to be mutually understood.

From a system point of view, electrification of the industrial sector will further blur the lines between the power and the industrial sector. A trend that is already occurring but will accelerate over time. The required cross-sectoral cooperation does not come naturally, and it requires an ecosystem in which public and private parties collaborate in the entire value chain. The focus of the Task is establishing from bottom-up a shared understanding of the system aspects of industrial electrification and the need for sector coupling. Increasing interconnections between sectors means that changes in one sector can trigger (un)wanted effects in the other and vice versa. Furthermore, differences in policies, programs, and regulations among and within sectors will affect the prospects for electrification. Decision makers, both in industry and government, face significant knowledge gaps that hinder informed decision making. Because efforts are currently being carried out in different countries and sectors to steer the transformation of the industrial sector, including electrification, there is a need for a common platform that allows coordinating efforts, exchanging knowledge and lessons, and exploiting potential synergies. The Task aims to be a platform for enhancing collaboration between countries in the area of industrial electrification.

4. Objectives of upcoming Subtask 2 of the Task

Objective of Subtask 2 is to build and strengthen the international ecosystem of industrial electrification with a focus on system impacts. The Task will facilitate exchange of knowledge and lessons learned, increase awareness and international collaboration. The Task entails taking stock of technologies for electrification of industry, sharing and aligning insight and methodologies, identify best practices, broaden awareness by facilitating sharing.

The work in Subtask 2 of the Task is split up in activities and sub-activities. This is the result of the suggestions from participating groups within Subtask 1 of the Task and from input of the involved participants in Subtask 2.

These sub-activities will be coordinated by the participating countries as part of their contribution to the Task. These participants are responsible for the execution of the Task and for finalizing the deliverable.

Activity	(Sub-)Activity	Activity coordinator
A: Management of the Task	A: Management of the Task	Task Manager

B: Enabling a shared view on the current status of industrial electrification	B1: Making an overview of projects or case-studies performed by participants	To be defined
B: Enabling a shared view on the state of the art of industrial electrification	B2: Understanding the current status of electrification technologies	To be defined
B: Enabling a shared view on the state of the art of industrial electrification	B3: Understanding the used the definitions, system boundaries and methodologies	To be defined
C: Enabling a shared view on the current insight & knowledge gaps of system impact	C1: Understanding the extent, cost and value of flexibility of industrial electrification.	Austrian consortium
C: Enabling a shared view on the current insight & knowledge gaps of system impact	C2: Understanding the impact of industrial electrification on sector coupling and infrastructure	Austrian consortium
D: Establishing collaboration with other Tasks and TCPs	-	To be defined
E: Identify the next steps for industrial electrification proposal for continuation of the Task	-	Task manager

Activity A Management of the Task Industrial Electrification

The Task manager will plan and manage the work of the Task and supervise production, finance and availability of the Task. The Task manager keeps the Task running to schedule. The Task manager will participate in one IETS ExCo meeting annually.

- Meetings:
  - A-M1: Kick Off
- Deliverables:
  - A-D1: Half yearly progress reports
  - A-D2: Synthesis report
- Activity coordinator: Task Manager

The table below gives a summary of the activity:

Activity A: Management of the Task	
Meetings	• A-M1: Kick Off (September 28, 2021)
Deliverables	• A-D1: Half yearly progress reports • A-D2: Synthesis report

Activity B Enabling a shared view on the state of the art of industrial electrification

Projects aiming to technology selection, assessment of electrification potentials, identification and evaluation of system impacts are currently been planned or developed by Task members. The concept of industrial electrification encompasses a large number of concepts and technologies. There are not clear "winner" options yet, and therefore it is important that information on a large set of technologies is available. Countries, research organizations and industries are currently working on assessing, developing, testing one or several technologies. The lack of a shared platform results in an increased likelihood of effort duplication (re-inventing the wheel), increases the amount of time needed to take an investment decision (lack of information increases investment risk), and decreases opportunities for collaboration. Furthermore, sharing "real" cases and when available (best) practices, provides stakeholders not only with data on a given technology, but also with information on the context (needs and conditions) in which the technology was tested and or implemented. These projects have or will be carried out at different levels (unit, process, plant, cluster, region, national, global) using different definitions and system boundaries, approaches and methodologies. The diversity and heterogeneity of definitions, approaches and methods not only leads to a broad variation of the results, but also increases the complexity of decision-making as findings are not easily comparable. This subtask aims to create a formal space for sharing and discussing the definitions, approaches and methods currently used by Task members as a first step for developing alignment practices. Goal is enabling a shared view on the state of the art in industrial electrification by sharing lessons learned from projects, key characteristics from electrification technologies and used methodologies in projects.

Sub-activities:

B1 Making an overview of projects or case-studies performed by participants*:*

A common but simple format with the requirements, e.g. type of data, will be developed and provided to the partners for reporting the information of projects finished or ongoing on industrial electrification. This will increase the quality and consistency of information. The factsheets may contain: 1) short description, 2) key findings, 3) the studied technology, its key characteristics and SWOT (strengths, weaknesses, opportunities and threats), 5) the used definitions, 6) system boundaries and approach. The factsheets will be grouped in three categories: promising practices (for projects at small scale or based on desk-top evaluations); demonstrated practices (for projects that demonstrate technologies at relevant industrial scale), and best practices (for finished project that can demonstrate evidence of success, resulted in a clear contribution to existing knowledge and have the potential to be replicated or adapted to other settings).

- Meetings: decentralised meeting(s) with Task participants and if relevant the working group
- Deliverables: B1-D1: filled templates by participants
- Activity coordinator: To be defined

B2 Understanding the current status of electrification technologies:

Making a synthesis of key technical characteristics (including e.g., TRL, purpose, technical conditions), and when available, economic and or environmental performance from the overview of projects. The aim is to generate a general overview with information available of the different technologies that is comparable.

Second part of this work is facilitating an international expert meeting to discuss electrification technologies and their current status. This aims to provide a space for discussion on industrial electrification. Departing of information provided by the Task members in activities 1.1 and 1.2, meetings will be organized that allow Task

members as well as invited speakers to discuss the current status of electrification technologies. This information can then be used, for instance, to develop and or update the SWOT analysis of the different technologies.

- Meetings:
  - B2-M1: Electrification technologies and their current status
- Deliverables:
  - B2-D1: Memo synthesis of current status of electrification technologies and discussion points and key findings from meeting(s)
  - Activity coordinator: To be defined

B3: Understanding the used the definitions, system boundaries and methodologies:

The primary goal of this activity is to generate a live document with an overview of the definitions, systems boundaries, approaches and methodologies currently used in projects developed by Task Members.

Second part of this work is facilitating an international expert meeting to discuss definitions, methodologies & approach in projects. An expert meeting will be organized aiming to discuss the definitions and approaches used in projects exploring and or assessing industrial electrification technologies and strategies. The meetings will focus on sharing experiences in order to generate understanding of advantages and disadvantages found when using a given set of definitions, approaches and methods. Note that this action does not aim to design or impose a single methodology among Task members, but rather seeks to find ways of aligning information gathered through dispersed methodologies. In the meeting we will aim to discuss pragmatic ways of understanding the differences between definitions and methodologies and making the insights gained usable for future projects.

- Meetings:
  - B3-M1: Definitions, methodologies & approach
- Deliverables:
  - B3-D1: Memo synthesis of used definitions, methodologies & approach and discussion points and key findings from meeting(s)
- Activity coordinator: to be defined.

The table below gives a summary of the activity:

Activity B: Enabling a shared view on the current status of industrial electrification, its technologies & used definitions and methodologies	
Sub-activities	• B1: Making an overview of projects or case-studies performed by participants • B2: Understanding the current status of electrification technologies • B3: Understanding the used the definitions, system boundaries and methodologies
Meetings	• B2-M1: Electrification technologies and their current status • B3-M1: Definitions, methodologies & approach in projects
Deliverables	• B1-D1: Filled templates of projects by Task participants • B2-D1: Memo synthesis of current status of electrification technologies and discussion points and key findings of meeting(s) • B3-D1: Memo synthesis of used definitions, methodologies & approach and discussion points and key findings of meeting(s)

Activity C Enabling a shared view on the current insight & knowledge gaps of system impact

Electrification is an important option for achieving GHG emission reductions in the industrial sector. However, the large-scale deployment of industrial electrification will not only depend on the availability, techno-economic and environmental performance of electrification technologies, but also on the ability of the system to cope with the stress that electrification will produce on renewable electricity capacities and infrastructure. Furthermore, enhanced penetration of renewables in the grid is already increasing the need for flexible use of electricity in the industrial sector. This trend is expected to continue and will have implications regarding the selection of technologies and the operation conditions that will allow industries to maximize their use during favourable market conditions. New business models and cases as well as new markets (e.g., capacity markets, system services) are also likely to be needed to support the transition. These examples highlight the complex, intertwined and dynamic characteristics of industrial electrification at system level. This activity aims to gather and share practices, information on system integration and system impacts of industrial electrification. The understanding of the system aspects and impacts is key to provide a good and detail description of the industrial energy system. Efficient implementation of novel technologies and systems (CCUS, biorefineries, electrification, storage systems, industrial symbiosis, systems for negative emissions, etc.) as well as more efficient "conventional" technologies, will be a challenge, for which process integration methods and tools will be crucial and will play a critical role to maximize the benefits from these systems.

Sub-activities:

C1: Understanding the extent, cost and value of flexibility of industrial electrification

This activity aims to disseminate knowledge on the impact of flexibility in a) the selection and operation of electrification technologies, b) within the industrial site and c) in the larger system. In an electrified future, industrial plants should be flexible (*i.e.* demand response for market and network). Industries sometimes plan for "low hanging fruit" first and then plan for the more complex changes. This creates a risk for a lock-in effect that limit or prevent future improvements, i.e., a sub-optimization stepwise instead of system optimization based on a strategic planning. Therefore, it is important to have insight on the extent and economic implications of flexibility on an industrial setting. This would allow identifying priorities for strategic planning, hot-spots and bottlenecks which are relevant for decision making processes, and identifying long term implementation risks. Another important aspect in this sub-activity is the share and understanding of current methods and models that describe the implication of electrification of the industrial sector. Those are relevant approaches for identifying solutions between industrial process, roadmaps, recommendations for policy, among others which have been developed in recent decades.

A meeting will be organized to share insights obtained from the projects as well as from invited experts and will also identify further R&D needs on cost and value of flexibility. The aim is to discuss the potential extent, cost and value of industrial flexibility. From the meeting, a memo paper shall be derived, summarizing specifications, key statements, controversial discussion points and research white spots.

- Meetings:
  - C1-M1: Extent, cost and value of flexibility of industrial electrification from a system perspective
- Deliverables:

        - C1-D1: Memo synthesis of extent, cost and value of industrial electrification and key discussion points and findings from meeting(s)
    - Activity coordinator: Austrian consortium

C2: Understanding the impact of industrial electrification on sector coupling and infrastructure

Electrification of the industrial sector will test the ability of the system to cope with the stress that electrification can produce on renewable electricity capacities and current and future infrastructure. Also, electrification requires that industry and the energy sector are more integrated. Therefore, there is a need for understanding the implication and impact of sector coupling of infrastructure needs in an electrified industrial sector. There is a need for understanding the a) The synergies of the industrial sector and the energy sector; b) the potential demand for renewable electricity; c) the need and potential for infrastructure expansion, and d) the need for electricity, gas and thermal storage. Two meetings will be organized for this sub-activity: i) the first is on the assessment and impact of sector coupling in industrial electrification and the ii) second focusing on the impact on the demand for infrastructure, and the limitations imposed by infrastructure for the development of an electrified industrial sector. From the meetings, a memo paper shall be derived, summarizing specifications, key statements, controversial discussion points and research white spots.

- Meetings:
    - C2-M1: Assessment and impact of sector coupling in industrial electrification
    - C1-M2: Impact on the demand for infrastructure and the limitations imposed by infrastructure
- Deliverables:
    - C2-D1: Memo synthesis of impact of industrial electrification on sector coupling and infrastructure and key discussion points and findings from meeting(s)
- Activity coordinator: Austrian consortium

The table below gives a summary of the activity:

Activity C: Enabling a shared view on the current insight & knowledge gaps of system impact	
Sub-activities	• C1: Understanding the extent, cost and value of flexibility of industrial electrification • C2: Understanding the impact of industrial electrification on sector coupling and infrastructure
Meetings	• C1-M1: Extent, cost and value of flexibility of industrial electrification from a system perspective • C2-M1/ C2-M2: Assessment and impact of sector coupling in industrial electrification. Impact on the demand for infrastructure and the limitations imposed by infrastructure
Deliverables	• C1-D1: Memo synthesis of extent, cost and value of industrial electrification and key discussion points and findings from meeting(s) • C2-D1: Memo synthesis of impact of industrial electrification on sector coupling and infrastructure and key discussion points and findings from meeting(s)

Activity D: Establishing collaboration with other Tasks and TCPs

Industrial electrification is a broad topic and its scope overlaps with part of the work done in other Tasks, for example Task XI (industrial biorefineries), Task XV (industrial excess heat), Task XVII (membranes in biomass systems) and Task XVIII (digitalization and AI) as well as the Heat Pumping and the Hydrogen TCP's. It is therefore important to develop channels of communication that allow for not only exchange of information but also to explore possibilities for carrying out join actions (for instance workshops) that would be of mutual benefit. This task aims to establish collaboration between Task 19 and other Tasks in IETs as well as the Hydrogen and heat pumps TPCs. The first step will be to identify "low hanging fruits", that is, activities that can be conducted with

minimal extra efforts from the parties. This could include participating in each other workshops, disseminating information from each other among Task members, organizing short conference calls, etc. The activity will make use of the new impulse within IETS to look for shared activities among the Tasks. As a second step, it will be explored the possibility to carry out a joint activity, for instance, a joint workshop or even a new subtask with some of those groups. Which tasks and groups cannot be decided yet but the target is to explore at least one joint activity as part of Subtask 2.

- Meetings: one or more joint activities. To be defined with other TCPS
- Deliverables:
    - D-D1: a report of the activities conducted with other Tasks and/or TPCs - to be included in synthesis paper of Subtask 2
- Activity coordinator: to de defined.

The table below gives a summary of the activity:

Activity D: Establishing collaboration with other Tasks and TCPs	
Meetings	• One or more joint activities
Deliverables	• D-D1: A report of the activities conducted with other Tasks and/or TCPs

Activity E: Identify the next steps for industrial electrification and proposal for continuation of the Task

- The international ecosystem on industrial electrification needs continuous development and the strengthening after Subtask 2. The Task manager will set up a proposal for organizational embedding and continuation for the Task with the Task participants.
- Meetings:
    - E-M1: Next steps and proposal for continuation of the Task
- Deliverables:
    - E-D1: Memo synthesis of next steps and proposal for continuation of the Task
- Activity coordinator: Task manager

Activity E: Identify the next steps for industrial electrification and proposal for continuation of the Task	
Meetings	• E-M1: Next steps and proposal for continuation of the Task
Deliverables	• E-D1: Memo synthesis of next steps and proposal for continuation of the Task

5. Planning, Meetings & Deliverables

Subtask 2 of the Task will run for two years from February 2021 to February 2023.

The Task manager will facilitate international meetings share experiences, methodologies and project findings amongst participants and experts. At least 2 face-to-face meetings and 4-6 online meetings will be facilitated. Dates can be modified during the course of the project, but below find selected dates for the meetings:

- September 28, 2021: A-M1: Kick off with Task participants (online)
- January 27, 2022: B2-M1: Electrification technologies and their current status (online)
- March 10, 2022: B3-M1: Definitions, methodologies & approach in projects (online)
- April 28, 2022: C1-M1: Extent, cost and value of flexibility of industrial electrification from a system perspective (online)
- June 9, 2022: C2-M1/C2-M2: Assessment and impact of sector coupling in industrial electrification/ Impact on the demand for infrastructure and the limitations imposed by infrastructure (face-to-face if possible w.r.t. COVID19)
- October 13, 2022: E-M1: Next steps and proposal for continuation of the Task (face-to-face if possible w.r.t. COVID19)

The following deliverables will be the result of the Subtask 2:

- 4 February, 2022: B1-D1: Filled templates of projects by Task participants
- 26 February, 2022: B2-D1: Memo synthesis of current status of electrification technologies and key discussion points and findings of meeting(s)
- April 1, 2022: B3-D1: Memo synthesis of used definitions, methodologies & approach and key discussion points and findings of meeting(s)
- May 13, 2022: C1-D1: Memo synthesis of extent, cost and value of industrial electrification and key discussion points and findings from meeting(s)
- June 27, 2022: C2-D1: Memo synthesis of impact of industrial electrification on sector coupling and infrastructure and key discussion points and findings from meeting(s)
- September 23, 2022: D-D1: Report of the activities conducted with other Tasks and or TPCs
- December 17, 2022: E-D1: Memo synthesis of next steps and proposal for continuation of the Task
- December 17, 2022: A-D2: Synthesis report
- Every half year: A-D2: Progress reports
- One report from each participant

6. Obligations and responsibilities of the roles in the Task

The Task manager:

- commits to organising meetings and knowledge exchange in accordance with the plan
- commits to coordinating the work within the Subtask 2
- is responsible for delivering the synthesis report
- is accountable for publication of the deliverables
- is the primary contact for the ExCO and attend at least one meeting a year
- help identify new participants to the Task. If a new country wants to participate after start of the task, it shall be allowed to do so after approval of all existing participants and with conditions specified by them.
- contributes with a maximum of 45 days per year to the Task

The Task participant (country, sponsor):

- the national delegate officially states the commitment of the country and, if relevant, which groups participate.
- commits to contribute with one or more recently finished or ongoing already funded project(s) with a content and size that shall be approved by all other participants. The minimum size of the projects is 30 person weeks.
- commits to actively contribute to the Subtask 2 of the Task with input, attendance at online and face-to-face meetings, working at memo's and the synthesis report during 2 years.
- commits to actively sharing insights and knowledge and stimulate international collaboration
- commits to assisting the Task manager in preparing the work plan,
- commits to bear travel and accommodation costs for at least two face-to-face meetings
- In the case of more than one group participating from a country, each group, defined by a statement from the national delegate, shall have a contribution in accordance with the bullet above. The national delegate will appoint one coordinator. This coordinator:
    - acts as contact person for the country
    - acts as ambassador for the country, bringing in an integral perspective from the country.
    - commits to coordinating the work and input from different experts within its affiliated country (if
    - relevant); organizing meetings, working on deliverables.
    - commits to inviting relevant experts from its affiliated country to meetings
    - commits to contributing with at least one project or part of a larger project already or finalised (in accordance to the practice in the IETS-TPC)
    - commits to delivering a country specific report

The activity coordinator:

Activities will be coordinated by one Task participant as part of their contribution to the Task. The Activity coordinator:

- commits to coordinating the work performed under the (sub-)activity
- is responsible for deliverable of activity
- commits to assisting in the co-ordination of the Task and advising the Task manager on the performance of the Task
- is responsible for providing semi-annual status reports to the Task manager and to the other participants.

7. Task Manager for Subtask 2

Jonathan Moncada from TNO in the Netherlands will be the Task manager for Subtask 2 of the Task.

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8. Risks

The following risks and their corresponding mitigation actions have been identified:

- Risk of one country dominating the work. This will not lead to sharing, an unbalance in knowledge sharing among the countries and/or not all perspectives will be head. The mitigation action is to upfront divide the activities amongst the countries and the Task Manager will have specific attention for this risk throughout the work and timeline of the Subtask 2 of the Task.
- Risk of an Task participant not participating as described in the section on obligations and responsibilities. The success and outcomes of Subtask 2 of the Task is dependent on the contribution of each Task participant. It could lead to a change of scope of the work in the Task or a change in activity coordination roles. The mitigation action is that the Task Manager will monitor this at least once every year. If a scope change is necessary, this will be proposed for approval to the ExCo by the Task Manager.
- Risk of the work of one country not coordinated and multiple contact persons per country, which makes it very time consuming for the Task Manager to coordinate the work. The mitigation action is that each Task country commits to one person coordinating the work and acting as contact person for the country.

9. Dissemination

General information about the Task will be uploaded on the website of IETS by the IETS secretariat. Results from the Task (as above) will be available on the IETS website. We trust on the sectary of IETS to upload delivered content on the website and also other regular channels deployed by IETS.
Results will as well as disseminated by the Task participants in their own countries to key stakeholders.

10. Intellectual property rights

All main results from the Task, including outcomes from workshops shall be open. Parties participating in the Task, however, may decide if a small part of a report shall be confidential. Any uploaded / shared material shall mention the original author. Unless otherwise stated and agreed, the author agrees that the material may be used and copied without restriction.