Interreg
EUROPEAN UNION
Danube Transnational Programme
DanuP-2-Gas

Deliverable number D.T4.2.1

Workshop Manual

Activity A.T4.2: Preparation of the Workshops for Future Projects and Funding

January, 2022

Project co-funded by the European Union funds (ERDF, IPA)
www.interreg-danube.eu/danup-2-gas

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DOCUMENT CONTROL SHEET

Project reference	
Full title of the project	Innovative model to drive energy security and diversity in the Danube Region via combination of bioenergy with surplus renewable energy
Acronym	DanuP-2-Gas
Programme priority	Priority 3
Programme priority specific objective	SO 3.2 Improve energy security and energy efficiency
Duration	01.07.2020 – 31.12.2022
Project website	www.interreg-danube.eu/danup-2-gas
Project coordinator	TZE

Short Description
The DanuP-2-Gas project within its WPT4 organizes the workshops for future projects and funding that will be based on the tools developed within the project. The workshops will be organized on the national levels by responsible partners. This deliverable intends to structure these planned workshops in a unified way.

Document Details	
Title of document	Workshop Manual
Activity	A.T4.2 Preparation of the Workshops for Future Projects and Funding
Deliverable	D.T4.2.1
Delivery date	December 2021

Version	Date	Author	Organization	Description
V1	26.9.2021	Mario Vašak	UNIZGFER	Initial version
V2	1.12.2021.	Mario Vašak, Astrid Heindel, Balazs Kiss	UNIZGFER, TZE, TCDA	Refining of the plan (structure, target groups)
V3	31.12.2021.	Mario Vašak, Anita Banjac, Antonio Karneluti, Filip Rukavina, Marijo Šundrica, Branimir Novoselnik, Kristina Radoš Cvišić, Dinko Đurđević, Kiril Raytchev, Ines Ahmić, Astrid Heindel, Balazs Kiss	UNIZGFER, EIHP, TZE, TCDA, BSERC, KSSENA	Processing of feedback from partners and creating the consolidated final version for call for feedback from stakeholders

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This document is issued by the consortium formed for the implementation of the DanuP-2-Gas project by the following partners:

- LP Technology Centre Energy - University of Applied Sciences Landshut (DE)
- ERDF PP1 Energy Agency of Savinjska, Koroška and Šaleška Region (SI)
- ERDF PP2 Tolna County Development Agency Nonprofit Public Ltd. (HU)
- ERDF PP3 Energy Institute at the Johannes Kepler University Linz (AT)
- ERDF PP4 Black Sea Energy Research Centre (BG)
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- ERDF PP10 International Centre for Sustainable Development of Energy, Water and Environment Systems (HR)
- ERDF PP11 Energy Institute Hrvoje Požar (HR)
- ERDF PP12 University of Zagreb Faculty of Electrical Engineering and Computing (HR)
- IPA PP1 Regional Agency for Socio – Economic Development – Banat Ltd (RS)

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CONTENT

1. INTRODUCTION

During 2022 DanuP2Gas project will uphold a series of workshop events in different countries, with the aim to increase interest in power-to-gas hubs that can be differently parametrized according to different local contexts and needs. The intention is to spark interest in various possible investment projects in power-to-gas hubs as well as to detect any standing obstacles towards the investments. The investments planning should be facilitated by different tools developed within the DanuP2Gas project.

The tools developed are intended to be used by different stakeholders along the Danube region and the workshops planned within Work Package T4 (WP T4) are intended to showcase these versatile usages. The aim is to enable the participants to use the tools for own power-to-gas hubs projects planning.

The aim of this document is to define the WP T4 workshop structure and analyze organizational issues as well as the set of pre- and post-actions towards stakeholders to gain maximum benefit from the workshops for the stakeholders and in this way maximize the project success.

The workshop is planned to be upheld in one day combined with the planned workshop for web tools developed in WP T1 and constitutes a whole of the event for external participants which is discussed here.

2. THE WORKSHOP CONCEPT

A. BACKGROUND INFORMATION ON POWER-TO-GAS HUBS AND THE DANUP2GAS TOOLS

The elaboration of the workshop concept starts from listing and shortly explaining power-to-gas hubs and the DanuP2Gas tools that should be presented on it.

Power-to-gas (P2G) hubs are parametrizable conversion points of biomass, biochar, electricity, water and heat into gas, electricity, hydrogen, biochar and heat. They consist of properly parametrized: i) subunits for conversion processes, like e.g. gasification, methanation, anaerobic digestion, combined heat and power (CHP) production, electrolysis, biomass-to-biochar (B2BC) conversion, etc., and ii) storages for different chemicals, like e.g. methane, hydrogen, biochar, etc. With a right parametrization of the subunits and storages they can be adapted to different local contexts regarding availability and costs of needed inputs/outputs and connections, as well as the subunits/storages costs. The parametrization can lead to the situation that just some of the inputs are used and just some of the outputs are produced – in the case that some parts do not contribute to the economic benefit of the whole plant these can be designed with zero-size. This means that also pure biogas plants (anaerobic digestion + CHP production) as well as pure B2BC conversion plants or pure electrolysis plants, where other processes are not present, are considered also P2G hubs in the context of this general free parametrization. One may note a misaligned general name of P2G hub with the final plant outlook for the case of a pure biogas plant or a pure B2BC conversion plant and should consider them as truncated P2G hubs in the context of the DanuP2Gas project.

Within the DanuP2Gas project, the problem of deciding on the location and parametrization of P2G hubs is tackled by designing a series of tools that approach the problem from the organizational, technical, ecological, legal and financial side. These tools are meant to be used by stakeholders interested in P2G hubs investment, by stakeholders in supply or consumption chains of the prospective P2G hubs, and by the policy

makers to direct the parametrization and localization of P2G hubs in the best national, regional and local interests.

These tools and related work packages within which they are developed within the DanuP2Gas project are:

- Danube Energy Platform (developed within work package T1 of the DanuP2Gas project (WP T1)),
- Transnational Renewable Energy Atlas (WP T1, WP T2),
- Optimization Tool (WP T2),
- Pre-feasibility Study (WP T2),
- Transnational Strategy for Effective Sector Coupling (WP T3), and
- Subsidies Catalogue (WP T4).

Danube Energy platform is a web platform where all the mentioned stakeholders interested in P2G hubs can interact on the transnational level and easily reach other developed tools.

Transnational Renewable Energy Atlas is an on-line web geo-information system (GIS) tool, available from the Danube Energy Platform, for showing different interesting assets for P2G hubs planning across the entire Danube region, i.e. for the following partner countries: Germany, Czech Republic, Slovakia, Austria, Slovenia, Hungary, Croatia, Serbia, Romania and Bulgaria. These assets are: i) biomass sources with prices, available quantities and classification regarding moisture content, ii) transport hubs used for biochar transportation over rail or water, iii) electricity, gas and water grids connection points, iv) renewable energy plants with types, power sizing and yearly yields of electricity, gas and/or biochar as well as with heat production/consumption, (v) industrial plants with power sizing and yearly gas and electricity consumption as well as yearly heat production/consumption. Also, the information about nationally relevant prices for electricity and gas, as well as respective grid fees is contained in the Atlas. The Atlas is further meant for interacting with the users in a way that they can select a point on the map where they would like to localize a P2G hub. After this point is selected, the user can select/unselect nearby assets he/she would like to consider and finally based on it a description file of the assets with respect to the selected point can be downloaded and then further used within the Optimization Tool described next.

The Optimization Tool provides the optimal suggestion for a P2G hub investment in the selected point in the Atlas such that it provides the economically optimal solution for its parameterization, for the given amount of maximum-allowed investment pay-off time and size. The tool is meant to be downloaded from the Danube Energy Platform and consists of the user interface and the computation algorithm files. It is used off-line on the end-user's computer. The parametrization consists of sizing of conversion units and storages in a P2G hub as well as grid connection capacities for it. Together with the parametrization, the user is suggested with the optimal operation recipe for the P2G hub, i.e. timings and amounts of consumptions of resources, internal processes running as well as P2G hubs products push to consumption chains. The user starts the optimization and reviews its results through a user interface which can be initialized by using the description file regarding the selected location on the Atlas. The user will be able to change all important inputs of the optimization if he/she knows it better from the local context compared to the data available on the Atlas, e.g. different prices of inputs/outputs of the hub or available quantities. The user can also select in the user interface to merge the P2G hub with a local renewable energy plant and/or an industrial plant.

The Pre-feasibility Study shows the results of application of the Optimization Tool and the Atlas for different interesting points in various countries of the Danube region, with an elaboration regarding the particular sizing of the P2G hub obtained and economical/ecological benefits stemming from it.

The Transnational Strategy for Effective Sector Coupling analyzes the legal contexts for P2G hubs development in all the countries of the Danube region, with pointed identified legal barriers for their deployment.

The Subsidies Catalogue is a list of funding instruments identified in all the countries of the Danube region and the transnational ones applicable for the Danube region, which either: i) can be directly used for investments in, planning of or research and development in P2G hubs, or ii) just indirectly support the development of P2G hubs. The Catalogue is available on-line through the Danube Energy Platform.

B. TOPICS ELABORATED ON THE WORKSHOPS

By following the above provided background information on P2G hubs and DanuP2Gas tools, in the sequel it is suggested how the workshop is planned to be thematically divided and different subtopics under each major workshop part are provided.

The topics and subtopics on the planned national WP T4 workshop are:

- Basic P2G hub concept:
  - The P2G hub concept followed within the DanuP2Gas project,
  - Major parts involved;
- Danube Energy Platform:
  - Different functionalities available;
- Transnational Renewable Energy Atlas:
  - Use of the web GIS tool,
  - Assets available in the Atlas and their respective data;
- Optimization Tool:
  - Intended purpose of the Optimization Tool,
  - P2G hub subunits models considered in the Optimization Tool,
  - Optimization Tool download from the Danube Energy Platform and basic operations needed to start to use it on the end-user's computer,
  - User interface of the Optimization Tool: Needed inputs and provided outputs,
  - Linking with the Atlas and uploading the selected point data from the Atlas into the user interface,
  - Running the calculations and previewing the obtained optimization results in the user interface;
- Pre-feasibility Study:
  - Analysis of examples of parametrization of P2G hubs elaborated within the Pre-feasibility Study which are from the country where the workshop is held,
  - Examples of parametrization of P2G hubs within the Pre-feasibility Study from other Danube region countries;
- Subsidies Catalogue:
  - Showing and analyzing the funding instruments entries in the Subsidies Catalogue for the particular country, as well as the transnational entries,
  - Quick overview of the listed subsidies present in other countries,
  -

- Transnational Strategy for Effective Sector Coupling:
  - Showing the conclusions of the legal framework analysis related to P2G hubs for the entire Danube region, with a particular attention put on the country where the workshop is held,
- Elaboration of particular P2G investment ideas:
  - The ideas could be brought up by participants or alternatively one demonstration of the Optimization Tool and the Transnational Renewable Energy Atlas usage can be done interactively with the participants starting from scratch,
  - Discussion with the participants what updates would they suggest for the Optimization Tool and the Atlas.

Order and way of presentation of the topics through sessions with listed durations is as follows:

1. **Power-2-Gas Hub** concept followed in the DanuP2Gas project (30 min);
2. **Danube Energy Platform** presentation and usages (45 min);
3. **Subsidies Catalogue** within the Platform (30 min);
4. **Transnational Renewable Energy Atlas** presentation and usage (45 min);
5. **Optimization Tool** – Basics, downloading and using (60 min);
6. **Pre-feasibility Study** – Presentation and analysis (45 min);
7. **Elaboration of a particular P2G hub investment idea** by using the Optimization Tool and the Transnational Renewable Energy Atlas – a concrete example starting from scratch (60 min);
8. **Existing regulation and administrative barriers** – presentation and discussion (45 min).

C. IMPLEMENTATION ASPECTS AND REQUIREMENTS FOR THE WORKSHOPS

By considering the planned topics and timings listed in the previous section, the workshop is suggested to last 1 full day and to have 4 working sessions that last between 1.5 and 2 hours each, and where between each of them there is a break for refreshment of the participants and a central brake for the lunch. Because of the specific pandemic situation, the workshop needs to be always planned to be run in a hybrid way, both in person and to ensure possibility of on-line participation. Within the workshop schedule a certain time frame will be left to include some other topics that local organizing partners deem relevant, an important one could be the transnational linking of different workshops participants, e.g. for biochar production, transport and consumption.

An example of the agenda can thus be as follows:

- 08:30-09:00 Registration of participants; Welcome coffee and snacks for on-site participants / Testing the workshop technical equipment for supporting the on-line participation;
- 09:00-10:45 1**Power-2-Gas Hub** concept followed in the DanuP2Gas project (30 min); **Danube Energy Platform** presentation and usages (45 min); **Subsidies Catalogue** within the Platform (30 min);
- 10:45-11:00 Coffee and snacks break for in-person participants / Break for on-line participants;
- 11:00-12:45 **Transnational Renewable Energy Atlas** presentation and usage (45 min); **Optimization Tool** – Basics, downloading and using (60 min);
- 12:45-13:45 Lunch for participants / Break for on-line participants;

- 13:45-15:30 **Pre-feasibility Study** – Presentation and analysis (45 min);**Elaboration of a particular P2G hub investment idea** by using the Optimization Tool and the Transnational Renewable Energy Atlas – a concrete example starting from scratch (60 min);
- 15:30-15:45 Coffee and refreshments for participants / Break for on-line participants;
- 15:45-17:30 Other topics to be addressed as required through public feedback / Transnational linking of participants based on already performed workshops / Additional discussions, questions, another investment idea (60 min); **Existing regulation and administrative barriers** – presentation and discussion (45 min).

The venue for on-site participation should be a lecture or a meeting hall which allows both presentation to the audience and allows that each on-site participant has a small desk/working space in front of him which would allow that the participant has its own laptop to be able to follow the interactive sessions. Minimum hardware requirements for the laptop as well as the operating system and other possible software requirements would be provided as information to the participants beforehand such that they can well prepare for the workshop. The internet connection should be assured for all on-site participants. It will not be obligatory to be equipped with a laptop to participate in the workshop, so it is a free choice of the participants.

The working language of the workshop will be the national language to approach the largest set of stakeholders and have permanently available prepared workshop materials also in the national language which can be later on published on the Danube Energy Platform for widest reach even after the workshop.

The responsible partners for different tools / strategies to be presented on the workshop will be encouraged to participate either on-line or in-person to support local organizing partners, especially when it comes to different specific questions posed by the participants such that these can be addressed and discussed immediately, which will increase the added value for the workshop's participants.

A general rehearsal is planned as an internal project event where the workshop smooth evolution will be first tested internally.

3. WORKSHOP EXTERNAL PARTICIPANTS AND STAKEHOLDERS AND THEIR INVOLVEMENT

A. STAKEHOLDERS

As already mentioned in the previous chapter, the tools developed within the DanuP2Gas project are meant to be used by stakeholders interested in P2G hubs investment, by stakeholders in supply or consumption chains of the prospective P2G hubs, and by the policy makers to direct the parametrization and localization of P2G hubs in the best national, regional and local interests.

Having said that, one may see that actually a broad set of stakeholders could find its interest in P2G hubs and thus also the interest to participate in the national workshops for the P2G hubs and related tools which are elaborated in this document.

The target groups and stakeholders for the workshops are given with the following non-exhaustive list:

- Potential investors in P2G hubs;
- Investment support institutions – banks, investment funds;
- Policy makers and executive agencies – responsible ministries, regulatory agencies, eco-funding agencies;
- Infrastructure operators – electricity and gas transmission system operators; electricity, gas and heat distribution system operators, market operators, electricity and gas trading platforms operators;
- Energy suppliers for electricity, gas and heat;
- Local and regional authorities (interested in renewable energy) as well as energy agencies supporting them in local and regional energy planning;
- Renewable energy plants operators and investors;
- Big producers of biomass or plant operators that process biomass (e.g. beer producers);
- Transport operators as intermediators for biochar and biomass transport between suppliers and potential P2G hubs;
- Big industrial consumers of natural gas and/or (waste) heat producers (e.g. glass industry, artificial fertilizers producers);
- R&D organizations in the field of energy.

B. NATIONAL AND TRANSNATIONAL CALL FOR FEEDBACK

Each nationally responsible partner for the workshops execution will collect the contacts of possible interested stakeholders by taking into account the list above, inform them about the prospective national workshop on P2G hubs and related DanuP2Gas tools to be organized, provide each of them with this document as the planning document for this event, and ask feedback on the document, especially on potentially some additional workshop topics that they would like to see covered, and in any case any feedback on this document that provides the planned workshop structure will be very valuable.

For the feedback asking via e-mails, the WP T4 leader will create a suggestion for such an e-mail where in the e-mail body a short explanation of the term P2G hub will be also given (this document contains it now also).

In addition, the ask for feedback will be launched also via the project web page and via other communication instruments available to the WP C leader KSSENA.

The feedback collection should be performed in the first quarter of 2022 and the collected feedbacks should be provided to the WP T4 leader by the end of the first quarter of 2022.

C. WORKSHOP DATES AND NATIONAL AND TRANSNATIONAL CALLS FOR PARTICIPATION

The concrete dates for the national workshop events, which will be held in period September-December 2022, need to be assessed by the local organizing partners in coordination with the LP and WP T4 leader in the second quarter of 2022 and these dates need to be assessed by the end of second quarter of 2022 (end of June 2022).

Meanwhile also calls for participation will be prepared in coordination of the WP T4 leader, WP C leader and national responsible partners for workshops – WP T4 leader will lead this. The call for participation will need to have included in it also the preliminary agenda and place of in-person execution of the workshop, such that also these issues need to be assessed along with the call for participation preparation.

The national responsible partners for workshops will launch calls for participation towards all the identified national stakeholders while also all the calls for participation will be published via the project web page and via other communication instruments available to the WP C leader of the project, in order to assure widest possible participation.

The on-site participants will need to register for the event via a prepared on-line registration form by a certain date which cannot be later than one week before the workshop event execution. The national responsible partners for the workshop will permanently trace the pace of registration and potentially remind the stakeholders who haven't provided any response. The on-site registrations will be processed on first-come-first-serve basis and if all the available places will be filled the remaining participants will be offered only on-line participation. The on-line participants will be able to register up to one day before the event execution.

Within the registration form the participants will be asked if they would like to candidate a certain location in their country which they would like to be analyzed as the location for a P2G hub during the workshop execution. Such site candidation will be possible at most one week before the event. At most 2-3 such locations could be analyzed in the course of the workshop and the national organizing partners will be able to discuss with the stakeholders who candidate such a location the different needed parameters for the Optimization tool in advance, if they would like to make them different from the Atlas default, and discuss if the particular stakeholders would like to share these data they would like to use with the rest of the workshop participants or not. In any case, the examples planned to be used in the workshop should obligatorily be analyzed before the execution of the workshop by the national responsible partner and the stakeholders who candidate them, and finally the examples to be analyzed on the workshop need to be firmly assessed and sent to all the registered participants within the final agenda of the workshop at least 3 days before the workshop execution.

The final agenda will be also published through the communication channels available to WP C leader at least 2 days before the workshop. The on-line participation registration will be possible up to one day before the workshop. The national organizing partner will provide the link for on-line participation to all registered on-line participants at latest at the end of the business day before the day in which the workshop takes place.

D. WORKSHOP EVALUATION FORMS WITH STAKEHOLDERS OPINIONS AND INTERESTS COLLECTION

The participants on the workshop will be asked to fill in the anonymous evaluation form in which they will be able to share their views on the workshop topics and how they were elaborated in their view. The participants will be asked, if they want to, to state specific interests in P2G hubs and in that case leave their specific contact data. Especially they will be encouraged to do so if they see a need for transnational binding with other possible stakeholders in their P2G investments plans.

The evaluation form will be also offered to on-line participants via an on-line form.

The structure of the evaluation form is roughly provided in the following. The evaluation forms are to be prepared in the national language according to it.

Evaluation form of the DanuP2Gas joint WP T1& WP T4 workshop

Please evaluate how useful were the following topics for you on this workshop:

Topic 1…(concrete name of the topic)……very useful useful not useful

Topic 2…(concrete name of the topic)……very useful useful not useful

Topic 3…(concrete name of the topic)……very useful useful not useful

Topic 4…(concrete name of the topic)……very useful useful not useful

Topic 5…(concrete name of the topic)……very useful useful not useful

….

Topic n…(concrete name of the topic)……very useful useful not useful

Please provide your view in written what you found the most interesting and useful on the workshop:

_____

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_____

Please provide your suggestions how this workshop could have been further improved:

_____

_____

_____

If you have any specific interests in additional discussions with DanuP2Gas team please state them here and leave also your contact detail through which you would like to be contacted

_____

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If you have any specific interest in P2G hubs in terms of potential linking with other stakeholders nationally or internationally, please state them here and leave your contact since it might be that the DanuP2Gas consortium can find you a suitable connection through interactions with a multitude of stakeholders throughout the Danube region:

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4. WORKSHOPS POST-ACTIONS AND TRANSNATIONAL EVALUATION

The collected evaluation forms will be processed by the national responsible partners and process them in a national evaluation report which will be provided to the WP T4 leader to create the overall transnational report as the final result of the workshops execution.

The national responsible partners will put an effort to perform this as soon as possible in order that these evaluation forms can also be used in the remaining national workshops that still need to be executed, in order to potentially improve them with this feedback.

Additionally, the workshop materials will be made publicly available (in the national language) to all the interested stakeholders via the Danube Energy Platform to gain maximum outreach and a permanent effect of the held workshops.

The template for the national workshop evaluation reports is as follows.

National joint WP T1 & WP T4 workshop evaluation report

The national workshop in ……(country)…… was held at dd.mm.yyyy at ….(institution and address)….. by following the agenda given next.

<place the agenda of the workshop here>

There were overall ….(number)….. participants present in-person and additionally ……(number)….. participants present on-line.

The signed list of on-site participants as well as the log of on-line participation are appended

In average, the topics elaborated on the workshop were evaluated as follows:

Topic 1…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

Topic 2…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

Topic 3…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

Topic 4…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

Topic 5…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

….

Topic n…(concrete name of the topic)…… (number x) very useful (number x) useful (number x) not useful

Summary of responses from the participants what they found the most interesting and useful on the workshop:

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Summary of responses from the participants regarding their suggestions how this workshop could have been further improved:

_____

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_____

Summary of responses of the participants regarding any specific interests they have in additional discussions with DanuP2Gas team (contact details should be left out and communicated differently for specific matters since the national report will finally also be the project deliverable, and in it specific personal information should not appear; leave out also any concrete specific detail with personal or companies details)

_____

_____

_____

Summary of responses of the participants regarding any specific interest they have in P2G hubs in terms of potential linking with other stakeholders nationally or internationally (contact details should be left out and communicated differently for specific matters since the national report will finally also be the project deliverable, and in it specific personal information should not appear; leave out also any concrete specific detail with personal or companies details)

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