

# DT2.2.2: FEEDBACK FROM THE TRAINING COURSES AND EVALUATION

ALL COUNTRIES

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ZAGREBAČKI  
HOLDING d.o.o.



adelphi



VEOLIA

Montefeltro  
servizi



UNIVERSITY OF  
CHEMISTRY AND  
TECHNOLOGY  
PRAGUE



REGIONALNA  
ENERGETSKA  
AGENCIJA  
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Reinhaltungsverband Trattnachtal  
Biogas Trattnachtal GmbH

KOMPETENZENTRUM  
Wasser Berlin





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## List of abbreviations

<b>EE</b>	Energy efficiency
<b>ISA</b>	Integrated Sustainability Assessment
<b>LCA</b>	Life Cycle Assessment
<b>RE</b>	Renewable Energy
<b>UCA</b>	Urban Compatibility Assessment
<b>WWTP</b>	Wastewater treatment plant



## 1. Introduction

The aim of this deliverable (DT.2.2.2) is to document and evaluate the first training event conducted in each of the five REEF2W pilot countries. This is based on observations of the organisers of the trainings, comments and ideas by the participants during the course of the training, and feedback they provided through two questionnaires. The structure of the document is divided into four parts: a) key steps of the training; b) participant profiles; c) summary of feedback; d) concluding remarks & next steps.

The trainings have the main purpose to present and interactively test the Integrated Sustainability Assessment (ISA) tool that can be used to systematically assess technical innovations for energy optimisation of wastewater treatment plants (WWTPs) on different sustainability criteria. In this way it helps potential users such as utility operators or decision-makers in municipalities to determine whether and how the implementation of measures to increase energy efficiency and renewable energy production are useful. It does this by making predictions about potentials to improve energy performance, the technical feasibility or the environmental sustainability of the Reef2W solutions.

The findings and lessons learnt gathered in the different countries were discussed during the project meeting in Prague in the end of November 2018. There it was determined which of the recommendations would be implemented to improve the prototype of the ISA-tool. In the second round of trainings (date to be announced), the improved version is once again presented to and tested with different stakeholders (this time also including decision-makers from municipalities and the Berlin city government) in order to fine-tune and produce the final version.



## 2. Germany

### 2.1. Key steps of the training

#### Agenda of the Berlin training course

Zeit	Beschreibung
10:00	Vortrag über das REEF 2W-Projekt
10:20	Kurze Präsentation über die Struktur des REEF 2W-Tools
10:50	Kaffee-Pause
11:00	REEF 2W-Tool Vorstellung und Anwendung
11:30	Feedback, Diskussion
12:00	Gemeinsames Mittagessen

The training was comprised of four key parts. André Müller from adelphi moderated the training while Christian Loderer from Kompetenzzentrum Wasser Berlin guided the participants through the tool. The first part of the training introduced the different participants, gave a short overview on the REEF 2W project. Here, the different pilot sites and the specific fictive technological upgrades and their differences among one another were presented. Subsequently, the training directly proceeded to introduce the tool. This was done through presenting snapshots of its key components, allowing the participants step by step to understand the methodology. Before the coffee break, general questions (e.g. first impressions on the REEF 2W approach and the selected solutions) were asked. In the last and most important part values (obtained from a Berlin WWTP) were entered into the excel table. It was decided spontaneously to have questions and remarks on the go, which proved useful to receive concrete feedback.

### 2.2. Participant profiles

#### Participant profiles

	Name	Organisation	Expertise & background
1	André Müller	adelphi	Mr. Müller's expertise concentrates on water policy. In REEF 2W, Mr. Müller is facilitating the trainings and their evaluation in Berlin. He has also led the research on the legal framework conditions



			(Deliverable DT.2.4.1 and 2.4.2)
2	Maike März	Adelphi	Ms. März has mostly assisted in preparing and implementing the meetings (e.g. through compiling the training materials and taking minutes)
3	Christian Loderer	KWB	Mr. Loderer is project manager from REEF2W and leader for the Berlin site. His expertise is wastewater treatment and innovative technologies in wastewater treatment.
4	Anne Kleyböcker	KWB	Mrs. Kleyböcker is a project manager at KWB with a focus on sewage sludge treatment, energy and nutrient recovery, and biogas production, among others.
5	René Griese	KWB	Mr. Griese is a master student at KWB and his research focus is LCA analysis. He worked intensively 9 months on LCA models for WWTPs.
6	Mehdi Habibi	KWB	Mr. Habibi is a master student at KWB and his research focus is building energy models. He worked intensively 9 months on an energy model including Biogas-Upgrading and P2G at WWTPs
7	Albert Dietrich	Berliner Stadtwerke	Mr. Dietrich is an expert on renewable energy systems and supported KWB in developing the Berlin pilot within the REEF2W project
8	Christopher Dreke	BWB (FE)	Mr. Dreke is an expert in renewable energy systems, doing his PhD at BWB focusing on energy optimization of WWTP in Berlin with focus on implementing new technologies such as biogas-upgrading and P2G
9	Bernd Heinzmann	BWB (FE)	Mr. Heinzmann has a 30 years experience in wastewater treatment by leading different research projects as well as working on different decision support tools for WWT operators within BWB.
10	Martin Garz	BWB (AE)	Mr. Garz is responsible for the overall energy performance at WWTP Waßmannsdorf. He has more than 20 years of practical experience in the field of energy optimization as well as energy generation at large WWTPs.
11	Susi Burczyk	BWB (FE)	Ms. Burczyk is site manager of Stahnsdorf WWTP with more than 15 years of practical experience in operating WWTPs.
12	Andreas Lengemann	BWB (AE)	Mr. Lengemann is responsible for the overall sludge line at the WWTP Waßmannsdorf including the digesters, the dewatering and the phosphorus recovery process. He has more than 20 years of practical experience in the field of sludge management and WWTP operation of large WWTPs.



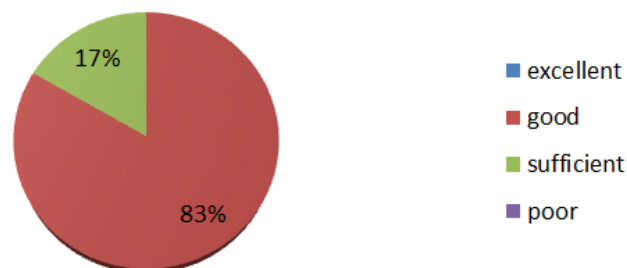
13	Nathan Obermaier	UBA	Mr. Obermaier is an expert in energy and environmental policy and focused the last 3 years on the energy positive WWTPs and the different regulations concerning the renewable energy laws in European Countries.
14	Jan Waschnewski	BWB (FE)	Mr. Waschnewski has more than 15 years of practical experience at WWTP operations and on different research topics in the field of optimization of WWTPs.

As table shows, the pool of participants (excluding the organisers) comprised three different backgrounds: A representative from Berliner Stadtwerke, a public provider of renewable energy and agency to promote them in the city, provided an energy perspective. Practical experience in engaging with wastewater treatment utilities was provided through Berliner Wasserbetriebe, Germany’s largest water service provider, which runs and oversees all water and wastewater utilities in the realm of Berlin. Kompetenzzentrum Wasser Berlin is a long-standing partner to both of them, and has led various joint applied research projects on the topic from over recent years. adelphi too has engaged with the water-energy nexus topics in various projects.

### 2.3. Evaluation of questionnaires and verbal feedback

#### Questionnaires

**The TOOL is able to collect the most relevant technologies available in your plant useful to describe the energetic aspects?**

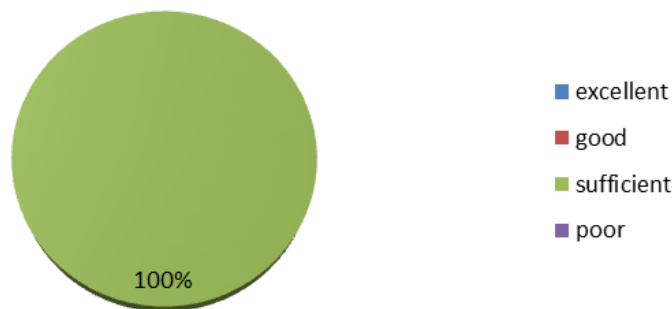


The participants thought the REEF2W approach, its ideas and goals are good or excellent and that the technologies investigated in the project are relevant for current WWTP plants and are represented in the market. This matches the overall



engagement and opinions during the training, which were predominantly positive. However, in their opinions the tool does not cover future developments planned in the WWTPs (80 % selected “poor”) while its values mismatched the “situation” at the WWTP (67 % selected “poor”).

### Are on line provided information easy to use and understandable?

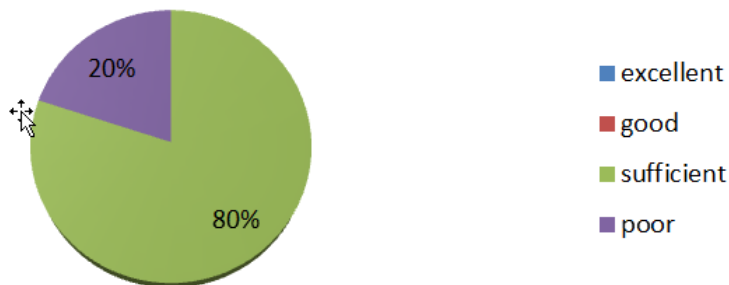


Information provided to understand the tool was viewed as only sufficient or poor (including the “Dialog Boxes”). This pertains also to the final report: It was considered unclear by 80% of the participants. More than two-thirds of the participants stated that the results section was unclear, so that the tool didn’t allow them to identify advantages and consequently take further actions towards a more comprehensive evaluation. However, this conflicts with the results of another question, in which 50 % stated that the requested information was sufficient to describe and recognise the considered plant in the future. Concerning the graphical design, the findings suggest that there is more work to be done: 50% of the participants perceived the graphical design sufficient and 50 % though it was even poor.





## Are final results presented in the REPORT clear enough to help for future decisions?



The results were mixed in what regards the accessibility of the information that is needed to run the tool. Half of the participants considered information easy to find and to provide, while the other half thought the opposite.

### Verbal Feedback

#### Starting Section

- As a first step the status quo energy performance of the plant should be calculated (without heat pump, other add-on technologies)
- The introduction slide of tool should be a visual interface where you can click on different components of the the WWTP (such as biogas upgrading) and then insert values, for example for changing temperatures of the digester
- The visual appeal of the tool is critical so people use it while it will be more self-explanatory (nobody reads a manual!)
- After the status quo energy performance assessment has been completed, there should be an interim result (status quo inputs: WWTP, substrates EE, digestion)+ the tool should make suggestions what the user can do now (e.g. if there is excess heat proceed to UCA; no excess = heat pump...)
- This guidance requires the user to only fill the needed information - and thus saves limited time.

#### Wording, readability and units of measurement

- Replace all complicated abbreviations with easy-to-understand words and add needed info in foot notes if necessary (e.g. OFMSW)



- Provide all units and - ideally - ranges for realistic values (beneficial if the user does not know everything in detail!) + mention it is ok that values can be outside of this range
- The tool needs to check typed in values and inform users if these are wrong/to cause errors
- WWTP input total energy, is this the total or net demand?
- Added value of clickable boxes (HTC, Composting) unclear
- Make numbers easier to read (=digit grouping)
- Input for anaerobic digestion: LHV should be written out/explained per “\*”

### Results Section

- Total sum (of the monthly values) should be given
- The report/results definitely needs nice graphics!: indicators with red/green, nice graphs, break even points easily to see....
- Usability/Practicability
- We should reduce complexity on the tool’s “surface” wherever possible (mayor of a small community or WWTP operator has no time)
- Also, keep in mind that they may not have comprehensive knowledge, especially in small plants (e.g. asked floor space of the buildings heated by the plant difficult)

### EE

- Two questioned were raised: Is the DECAMAX topic considered? (->heating of sludge with excess heat for dewatering purposes); is the temperature from wastewater or digestion expected (@ input values) ?
- WWTP specific input: biogas fed into the grid: if a number in the status quo field is missing while future case has a number entered show error as result..

### RES

- For photovoltaic the location is missing - the solar irradiance figure is different for each site;
- Wind power is missing as a renewable energy source;
- Heat pumps are an integral part of the calculation while they should be a an optional upgrade (we gave feedback on this topic to the tool developers); also there should be different options for a heat pump selectable: dimension, temperatures;
- There are (bio)gas powered heat pumps, maybe give that as an option if there is enough biogas to feed a CHP, but not enough for a second; (e.g. company ROBUR);



- Heat pumps may not deliver the required temperatures needed for injection into district heating (depending on the possible temperature, the user should be shown economically viable options for  $<70^{\circ}\text{C}$  (short distance heating) or  $>70^{\circ}$  (district heating));
- Add the amine scrubbing technology for biogas upgrading (it is relatively common in Germany);
- P2G option: should be selectable like other technologies;
- Where is the PV located... location not changeable
- @P2G: has no future scenario
- animal blood & wastes are a rather exotic substrate and rarely accepted by WWTPs due to hygienic concerns. Maybe hide these substrates in the “other” selection and put something more common in their place (e.g. olive oil residues...)

#### UCA

- Monthly values should be used for the UCA tool because excess heat is only available during summer
- Is the catchment area for co-substrates considered? As there is a feasible maximum of ~100km, it should be asked
- How is excess energy considered? ==>Yes, but at the moment there is no connection/ comparison
- If the explaining pictures are opened, there is no title which type of area this is (make it easy for the user; only one picture can be opened at the same time; let the user compare two pictures)
- maybe give some values for the amount of people living in this type of area (people/ha).
- What is external grid length? Is this the distance to the WWTP or short distance heating grid or something else?
- distance to gas grid injection(for biomethane injection) and operation pressure is not considered but vital
- UCA temperature of district heating grid ==>tool should say STOP and give alternatives if e.g. the heat pump can not deliver the required temperatures of the grid (e.g.  $>70^{\circ}\text{C}$ )
- How much excess heat is available vs. how much heat demand exists=> how much of the demand can be accommodated?

#### Economic Tool:

- The input units are wrong, maybe cents are intended?
- Subsidies are very different dependent on the type of renewable energy (PV vs. wind vs. CNG vs. biomethane....)!

#### LCA



- For chemicals you have to consider the real amount of active ingredient, an operator may only know the volume of a diluted chemical
- Add other chemicals? all: most users will not know such things, especially not the amounts of active ingredients...
- Units should be changed into tons

## 2.4. Concluding remarks

- The 10 participants were active, raised many questions already during the trainings, and engaged in the discussion afterwards. **The resulting feedback includes various good points for improving the tool;**
- The training proved that the tool is **still at an early stage of development**, with much work to be done;
- Among technical issues, integrating **“live feedback”** on wrong values inserted and **connecting the five workings modules** seem most crucial;
- **Re-structuring the tool into two parts** - a) a status-quo energy performance and b) an evaluation of additional RE technologies - was highly recommended by the participants;
- The ISA generally **lacks visual appeal** while both the “starting interface” and the results section should be simplified–/ complemented through graphical elements;
- Wherever possible, **reduce complexity on the surface level (what is visible to the user)** without undermining the science behind calculations.



## 3. Austria

### 3.1. Key steps of the training

#### Agenda of the training

Time	Description
10:00	Presentation of the REEF 2W Project
10:15	Presentation of the REEF 2W Excel tool
10:45	RHV Data-input and tool application
11:15	REEF 2W evaluation and feedback
11:45	Discussion
12:00	Lunch
13:00	Project Presentation at Eurotherme Bad Schallerbach
13:30	Presentation of spatial analysis in both case municipalities
14:00	Discussion about potential district heating network between the WWTP and the thermal spa
14:45	End of Meeting

At the beginning of the training course the REEF 2W project and concept was presented. Peter Lichtenwöhrer (BOKU) and Franz Zach (AEA) moderated the trainings and guided the participants through the REEF 2W tool. Based on the general REEF 2W-project-presentation, the Excel tool (including the ISA approach) was presented in the form of a PowerPoint presentation. After the PowerPoint presentation, the actual Excel was presented and tested. In doing so actual data from the WWTP was used to test the tool. Qualitative feedback on the tool and the approach was collected while data was filled into the tool. After the Excel-tool application, the data-input and the results in the “report”-section of the tool were reflected upon and discussed in detail. Oral feedback was given and the questionnaire was completed.

In the afternoon session the details concerning the case study application in the Trattnachtal were discussed. More details on that can be found in D.T2.2.1.



## 3.2. Participant profiles

### Participants of the training/meeting

	Name	Organisation	Expertise & background
1	Peter Lichtenwöhler	BOKU	Mr. Lichtenwöhler is scientific staff and PhD student at the Institute of Spatial Planning, Environmental Planning and Landrearrangement (IRUB) at the University of Natural Resources and Life Sciences, Vienna (BOKU) with expertise in Integrated Spatial and Energy Planning.
2	Franz Zach	AEA	Mr. Zach is project manager in the Austrian Energy Agency with expertise in the fields of renewable energies, heat grids, energy planning, economic evaluation.
3	Harald Bala	RHV Trattnachtal	Mr. Bala is CEO of the WWTP “RHV Trattnachtal”.
4	Herbert Aigner	Eurothermen Resort Bad Schallerbach	Mr. Aigner is Facility Manager and responsible for the energy management in the thermal bath.
5	Hannes Linninger	M&P	Mr. Linninger is an engineering consultant with expertise in heating solutions.

## 3.3. Evaluation of questionnaires and verbal feedback

### Questionnaires

During the training only one questionnaire was being filled (digitalised version attached in the appendix). To sum up this written feedback the goals of the project are appreciated as well as the training itself, but the tool was evaluated as being very poor due to the mistakes and problems still occurring.

However, apart from the one written feedback oral feedback was collected using the technical satisfaction questionnaire (technical satisfaction questionnaire can be found in the Annex) as well as a set of key-questions (developed during the tool-developer meeting - beyond tool specific aspects) as guiding documents. The key outcomes of the oral feedback are being summarised in the following chapter.



## Verbal Feedback and comments on key issues regarding the REEF 2W tool (technical satisfaction)

### Starting Section (home and front sheets)

- Welcome Message is too long and nobody will read it
- We should indicate the expected time needed for filling data into the tool
- The colour is not optimal
- What does “address” mean? What actually has to be filled in?
- “Connected population” is contradictory to the unit “PE”

### Wording, readability and units of measurement

- Sometimes units are not shown
- The tool should not be available openly, since it is more applicable for experts; before the tool application a list of required data should be provided; this list should be developed within the project
- For chemicals no units are shown

### Results Section

- Too much information; zero values should be hidden, some values seem to be wrong (lines 144, 145, 147)
- There should not be digits after comma
- Going back from report to insertion sheets deletes values (see Runtime Error 13)
- Runtime Error 13! occurs after this error message everything is deleted

### RES application

- It is not clear what all those values are needed for (N, O, S, Fixed Carbon ...)
- Which sums are 100 %?
- What is fixed carbon? Add explanation
- Volatile Matter? Add explanation
- m<sup>3</sup> sludge and organic percentage of sludge should be the values to be inserted, total solid is not useful
- What is a.r.? Please no abbreviations without explanation
- m<sup>3</sup>/t gas output is not asked, where does it come from?
- Total Solid for Secondary Sludge must be smaller than for primary (default)
- Default values are pseudo-precise
- What is the surface area? Add explanation



- Where is electricity from Biogas?

### Economic evaluation

- Which price for electricity? into grid, from grid? with VAT?
- Where is the amount of grid electricity to be inserted?

### Verbal feedback on key questions for training course 1:

- **What are your current technical challenges within your utility/municipality?**  
*To maintain quality in the effluent (e.g. pollutants).*
- **What are your ideas concerning future WWTP infrastructure developments?**  
**Which are your main targets for the future?**  
*Implementing heat recovery from WWTP effluent using a heat pump and to evaluate the economic feasibility of this undertaking.*
- **Is the generation, recovery and integration of renewable energy in your WWTP infrastructure planned in the future?**  
*No*
- **Which are the drivers that will help you to decide?**  
*Mainly economic aspects and considerations*
- **Which renewable energy are you focusing on?**  
*Recovered heat from WWTP effluent and production of digester gas*
- **What are your current challenges in terms of law and regulation?**  
*Basically, you have to adapt to the legal regulations.*
- **What do you think of the REEF 2W ideas and goals?**  
*Ideas and goals are really good. However, the tool has to highlight the most important key figures in order to use it as a basis for decision-making.*
- **What do you think is missing in the REEF 2W approach?**  
*The approach may be too holistic. There are too many aspects included in the tool.*
- **What aspects in the REEF 2W approach (e. g.: UCA; LCA; LCC) can be neglected/developed?**  
*The efficiency of the WWTP can be assessed with other tools. Concerning LCA system boundaries have to be clarified. Users who only want to assess the economic situation may not be interested in detail kg values of CO<sub>2</sub>. A better way to present environmental results is to show how much fossil energy can be replaced by renewables.*





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### 3.4. Concluding remarks and summary of trainings

- The participant provided constructive feedback on the REEF 2W tool and the presented results of the tool
- Since there are still **errors in the Excel tool** an actual application using data from the WWTP is hard to accomplish
- More **clarification** concerning data input and interpretation of results is necessary; simple “boxes” with information would allow users to better **understand the data requested** and to **interpret the provided results**
- The **design** and layout of the tool should be improved and the use of **colors** should be reconsidered
- **Showing unnecessary data** should be avoided in order to reduce complexity in the “report” section of the tool
- **The general approach is very good and interesting and should be further pursued**



## 4. Croatia

### 4.1. Key steps of the training

Time	Description
10:00	Presentation and introduction of the REEF 2W-Projekt
10:30	Presentation about the tool
10:50	Coffee pause
11:00	REEF 2W-Tool introduction
11:30	Feedback, Discussion
12:00	Site visit
13:00	End of the training

#### Agenda of the training course

The training course was held on November 14, 2018 in the premises of ZOV (Zagreb Wastewater Ltd). The training course was organized and guided by North-west Regional Energy Agency (REGEA) and supported by Zagreb City Holding Ltd. The aim of the training was to introduce the REEF 2W project and the tool developed within the project to the company which operates and manages the Zagreb wastewater plant in order to receive their feedback and to involve them in the project activities.

The training was comprised of five key parts. Mr Velimir Šegon from REGEA moderated the training and together with other colleagues from REGEA guided the participants through the tool. The core content of the training course was a power point based presentation and a an Excel tool. The first part of the training introduced the different participants from two companies and one energy agency and gave a short overview on the REEF 2W project. Here, the different pilot sites and the specific technological upgrades and their differences among one another were presented. The second part aimed at discussing the main legislative barriers regarding the incentive mechanisms and disposal of the sludge from WWTP. This session ended with a productive discussion where following obstacles regarding the legislation and financing options were mentioned:

- Low cross-sectoral cooperation, especially between public administrations and wastewater companies;
- Lack of concrete national support schemes that offer sufficient and long-term subsidies for renewables;



- Non-existence of feed-in tariff system in Croatia at the moment;
- Insufficient utilization of available international funds/programs.

However, the participants used training course to receive first information about the project and relevant legislative and financing issues. Organizers will further discuss the above-mentioned obstacles with the project partners and decision makers and push possible solutions.

## 4.2. Participant profiles

	Name	Organisation	Expertise & background
1	Velimir Šegon	REGEA	Mr. Šegon's is an expert on renewable energy systems and his expertise concentrates on energy efficiency. In REEF 2W, Mr. Šegon is facilitating the trainings and their evaluation in Zagreb.
2	Valerija Vrčec Habazin	REGEA	Ms. Vrčec Habazin has been involved in the organization of the training and preparing of all materials (e.g. through compiling the training materials, translating and taking minutes).
3	Martina Krizmanić	REGEA	Ms. Krizmanić has mostly assisted in organization of the training and preparing of all materials.
4	Bojan Ribić	ZCH	Mr. Bojan Ribić is Head of the Department for projects and international cooperation in Zagreb City Holding - branch Cistoca. His main expertise is in the field of waste management, especially biodegradable waste and renewable energy.
5	Robert Kostić	ZCH	Mr. Robert Kostic is Senior Associate in the Department for projects and cooperation in the subsidiary Cistoca. In Zagreb City Holding he is involved in various projects in the area of environmental protection, waste management and energy efficiency.
6	Rene Matthies	WTE	Mr. Matthies is technical director and manager of the WWTP.
7	Elvis Kešetović	WTE	Mr. Kešetović is an experienced hydro engineer with a demonstrated history of working in the civil engineering industry.

### Participants profiles

As table shows, the pool of participants comprised three different backgrounds: the representatives from Zagreb City Holding, the representatives of ZOV (Zagreb Wastewater Ltd.) - operators of the Zagreb WWTP and representatives of REGEA who

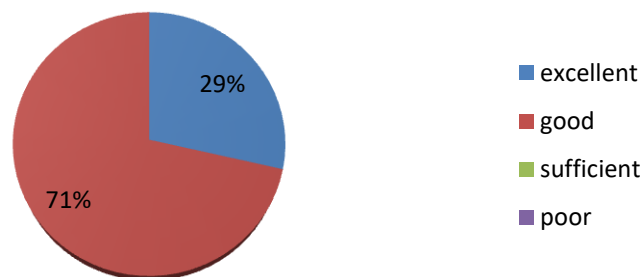


were also the organizers of the training course. Practical experience in engaging with wastewater treatment utilities was provided through WTE Wassertechnik Ltd., which runs and oversees the WWTP in Zagreb.

### 4.3. Evaluation of questionnaires and verbal feedback

#### Questionnaires

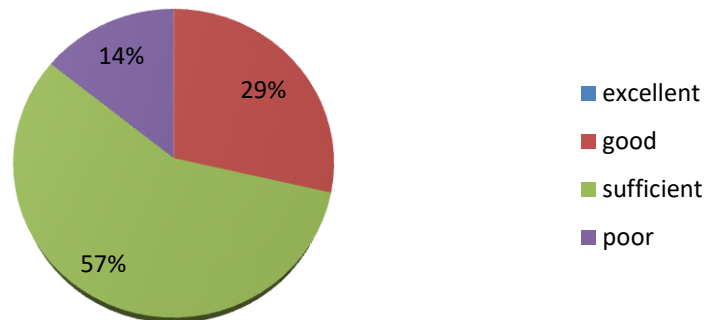
**The TOOL is able to collect the most relevant technologies available in your plant useful to describe the energetic aspects?**



The participants found the technologies covered by the project as very interesting and relevant. Moreover, most of them expressed that the REEF 2W approach, its ideas and goals are good or even excellent which confirmed the positive opinions during the training. However, in their opinions the tool is able to describe future developments planned in the WWTPs (71% selected “good”) and the values requested are considered in line with their situation at the WWTP (43% selected “good” and 43% selected “sufficient”).

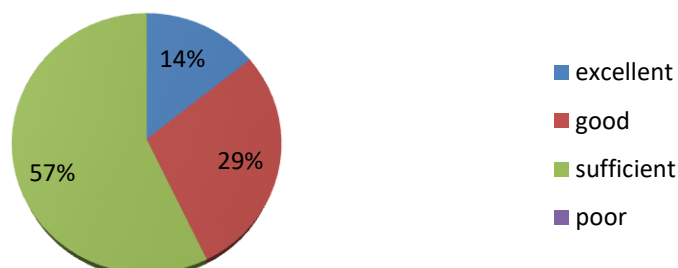


### Are on line provided information easy to use and understandable?



Online information provided within the tool was mostly viewed as sufficient (57%). On the other side, different opinions can be viewed when asked if the “Dialog box” is sufficiently clear and able to describe which information or action is requested Yet most participants gave positive feedback (57% selected “good” or “excellent“). Final results presented in the report are considered as sufficient by 57% of the participants. More than 80% of the participants stated that the results section was good or sufficient and therefore will allow them to identify advantages and proceed with further actions towards a more comprehensive evaluation. Also, all participants stated that the requested information was sufficient to describe and recognise the considered plant in the future (71% selected “good” and 29 selected “excellent”). Concerning the graphic design, the different opinions appeared but the fact that more than 50% of the participant considered the graphic design of the tool as “poor” or “sufficient” suggests that there is still more work to be done.

### Are final results presented in the REPORT clear enough to help for future decisions?





It is concluded through the questionnaires but also through verbal feedback that the accessibility of the information that is needed to run the tools is not that easy to provide. More than two-thirds of the participants stated that the requested information is hard to find and to provide, while one-third thought the opposite.

## 5. Concluding remarks

- All seven participants were very active. The discussion was very fruitful, with participants sharing their experiences and ideas for further improvement of the tool, but also for the development of the pilot case Model A. The training proved that the tool is **still at an early stage of development**, with much work to be done;
- It is concluded that if the targeted users for the tool are technical people in large-scale WWTPs then the tool is understandable. If targeted users are small public administrations or a WWTP serving a small population, the tool is too complex as the staff can lack required knowledge or data;
- All **abbreviations should be explained** directly in the tool;
- **Data required for input should have noted what is a realistic range**;
- Default economic values should be more realistic (e.g. default economic value for electricity in Croatia is 37 €/kWh what is certainly wrong; the presumption could be that this eventually should be cents not euros?!);
- The tool should inform the user if entered data is out of an acceptable range and will cause an error down the line;
- Most of the participants stated that the **ISA lacks an appealing graphic design**;
- Visual appearance has to be improved, to make the tool more user-friendly, at this stage tool is too overwhelming for average users;
- All participants were very satisfied with the general idea and approach which should be followed.

## 6. Italy

### 6.1. Key steps of the training

The training was comprised of three main parts. A first part that includes a general presentation of the program Interreg and more in detail Interreg Central Europe, a presentation of the project REEF2W, and a presentation of the link between the W&WWTPs and the excess of electricity that is available on the net due to the uncontrollable production from the renewables. The second part was dedicated to



the presentation of the ISA Tool presenting screenshots of the different pages of the ISA Tool and explaining them. The third part instead was dedicated at the application of some concrete example on the tool and the evaluations of the Tool and the results. The training was mainly conducted by Roberto Farina from ENEA while Marco Pazzini from Montefeltro Servizi moderated it. It was decided spontaneously to take questions and remarks on the go, which proved useful to receive concrete feedback.

## 6.2. Participant profiles

	Name	Organisation	Role & Interest
1	Roberto Farina	ENEA	Coordinator of the REEF 2W project and expert in biological energy recovery from waste and wastewater.
2	Giuseppe Nigliaccio	ENEA	Environmental engineer, expert in energy efficiency of industry. Responsible of the project +GAS for the production of biomethane from hydrogen and carbon dioxide
3	Sara Carli	GRUPPO CARLI SRL	Owner of a company interested in the implementation of technologies for recovery of energy from their organic wastes
4	Giancarlo Fabbri	FREE ENERGY	Owner of a company interested in the application of new renewable sources in different fields of wastes management
5	Mauro Guerra	Comune di San Leo	Mayor of the municipality of San Leo. He is an architect and as mayor interested in the valorisation of wastes
6	Giancarlo Zeccherini	Montefeltro Servizi	President of Montefeltro servizi, expert in waste management and interested in the economic evaluations of future perspective
7	Paolo Ricci	Montefeltro Servizi	Responsible for European projects, environmental permit statistics, interested in the technological aspect of the project
8	Marco Pazzini	Montefeltro Servizi	Director of the company, interested in the energetic valorisation on local wastes and economic possible revenues
9	Giulio Bucci	Adriatica funghi	Owner of large agricultural company with large production of organic wastes interested in the possible interaction between agroindustrial



			wastes and municipal wastes
10	Leonardo Bindi	Comune di San Leo	City councillor, interested in tools for evaluating possible development scenarios for the municipality
11	Guido Cardelli	Comune di San Leo	President of the Coldiretti one of the major agricultural associations interested in the environmental evaluations and in the sludge management perspective
12	Mara Grazia	Montefeltro Servizi	Administrative manager interested in the economical evaluations of the tool to describe future possible economical scenarios
13	Marco Pula	Irci Spa	Manger of the company, involved in the renewable technologies applications. Interested in the possible future interlink among different technologies and possible field of their application
14	Guglielmino Cerbara	Comune di Sant'Agata Feltria	City councillor, interested in tools for evaluating possible development scenarios for the municipality
15	Domenico Chiari	Fattoria Fontetto	Owner of agricultural company interested in the possibility to use sludge as fertilizers
16	Andrea De Luca	Montefeltro Servizi	Staff of Montefeltro servizi, interested in the implementation of new technologies in the treatment line and their possible technical impacts and difficulties in their implementation
17	Monia Vicini	Montefeltro Servizi	Administrative manager interested in the economical evaluations of the tool to describe future possible economical scenarios
18	Alessandra Soru	Montefeltro Servizi	Technical employee

As table shows, the pool of participants includes different professional backgrounds in economics and social sciences. Moreover representatives of private companies were present at the training, who were interested in the development of their future business especially. These included especially actors from the energy sector, public administrators interested in a better management of the wastes generated from the municipalities, and representatives of the agricultural sector interested in the possibility to have a link with the “organic waste” sector and interested on the





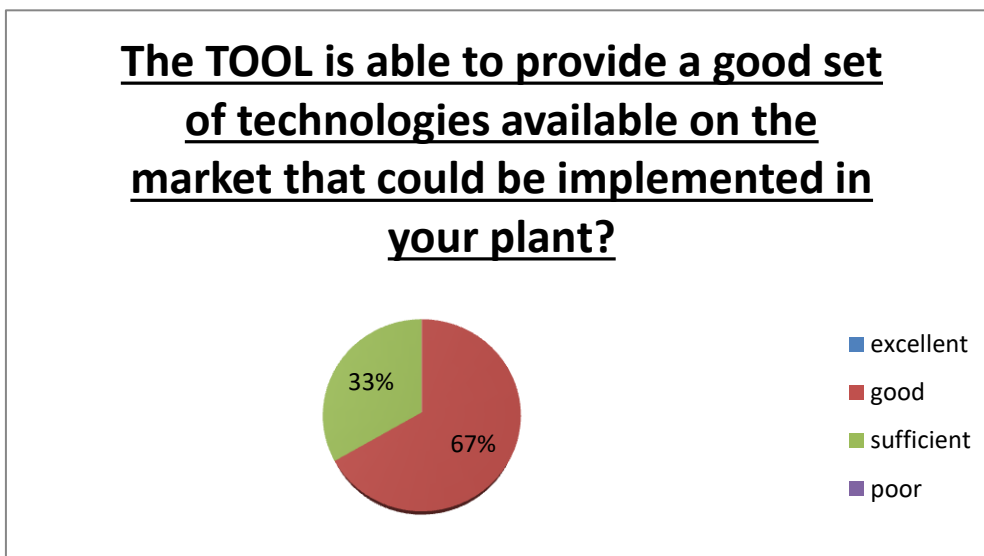
possible final use that sludge generated from the treatment can have when applied in the field as fertilizer.

### 6.3. Evaluation of questionnaires and verbal feedback

Two different questionnaires have been provided to the training participants. The first one regards mainly the communication aspects and satisfaction of the participants with the training; the second questionnaire was more technical and was more aimed to understand if the tool would match the needs of potential users and with the most available technologies, if question asked, explanations, and final information provided are well balanced between the consolidated technologies and the near future opportunities.

Unfortunately only part of the participants filled both questionnaires. Of the 17 participants at the course 15 answered the satisfaction questionnaire but only nine the technical one.

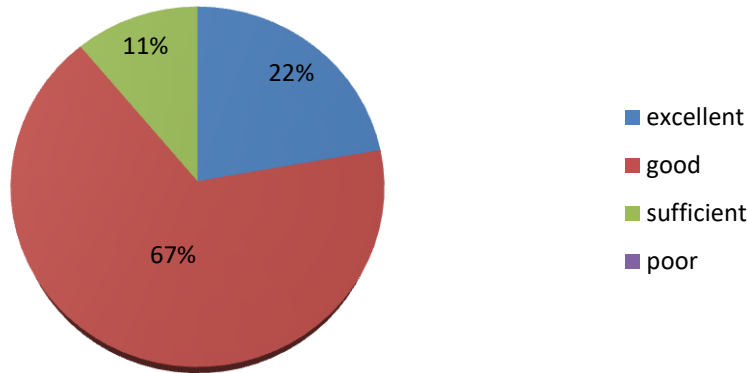
#### Results of the Technical Questionnaires



The general idea behind the project was appreciated by the participants at the training. At the same time the technologies presented in the project were considered too advanced or not sufficiently tested to be implemented in the real cases. For this reason probably no excellent evaluations were provided. On the other side in particular public administration representatives appreciated the possibility to have technical support for a large panel of technologies that could help them to identify possible future strategies.

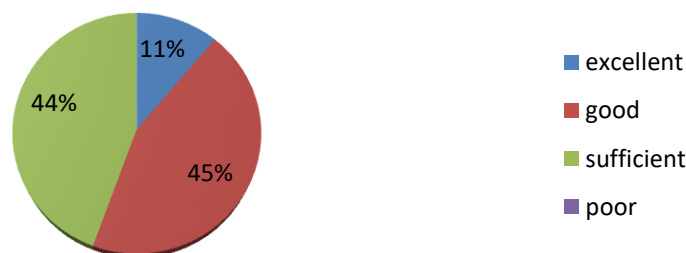


### Are on line provided information easy to use and understandable?



In general information provided has been considered of good and sufficiently clear to use the Tool and to arrive at the final results. The main critique was that it could be difficult for one single person to access all the requested information and therefore several persons would ideally work together to maximise the results from the Tool. The participants also believed that it would be a major benefit to set up the tool in the language of the country where it is used.

### Are final results presented in the REPORT clear enough to help for future decisions?



One of the main comments regarding the results section was that the amount of information is too high. Several fields in the report are empty or labelled “NA” because of the options chosen by the user. To improve the readability of the report and reduce useless information these fields could be removed from the report In this sense a dynamic report, able to be adaptable at the information requested and/or provided, could further improve the readability of the results.



The second comment was that, where possible, it could be useful to homogenise as much as possible the measurement units and provide a clear description of the meaning of the parameters provided.

## Verbal Feedback

### General comments

- The current version of the tool provides only the total energy that can be recovered after the potential upgrading of the plant. It would be more intuitive to provide a graphical or numeric view of the advantages that can be derived from changing the original to the future situation.
- The starting page of the tool should be improved with a more logic and visual agreeable approach that could help the user to analyse all the steps of the Tool and provide more correct information for improving the analysis of the local situation.

### Readability and units of measurement

- Use pop-up windows for the abbreviations to better understand the meaning of some parameter or Dialog box.
- Some problems with the use of comma and point in the number typing results are affected by this.
- When ranges are provided for a parameter ensure a mandatory check that the inserted value fit with it.

### Results Section

- For this section the demands for possible changes converged: Public administrators are only interested in general figures, private companies are interested in a more detailed yearly distribution of the possible energy recovery. It seems difficult to find a solution for both of them.
- Reduce the length of the result page and remove fields that are not used
- Provide a solution that, in one page/screen, could compare different scenarios
- Also, keep in mind that potential users may not have comprehensive knowledge, especially in small plants (e.g. asked floor space of the buildings heated by the plant difficult)

### EE

- It not clear how the biogas production is calculated from the actual situation and the future



- There are too many parameters to be provided to analyse the energy efficiency

#### RES

- Wind power is missing as a renewable energy source;
- The list of ready-to-use information on substrates should be more flexible. The current list of substrates provided is not usual. For this reason it could be better to have the possibility to introduce freely available substrates

#### UCA

- The thermal energy consumption is related only at the building heating, not considered sanitary water that in summer is the main/only possible use of heat
- No link is defined between UCA and RES regarding the energy consumption availability.
- Together with the pictures describing the urban area a numeric value could help in its evaluation (people/ha).
- There is a difficulty to understand the meaning of “Occupancy density”
- Only the modifications of an existing area are considered, not the possibility to have new settlements. This approach could provide a suggestion where new settlements could be more advantageously located.

#### Economic Tool:

- It is difficult to have all the requested cost at such a detailed level?
- It is difficult to provide the subsidies advantage because several times it depends on the type of energy generated and on the size of the plant

#### LCA

- Information provided under the LCA part of the report refers only to the CO2 emissions that is only part of the LCA evaluation, for this it should be better to modify the report label “LCA” in “CO2 emissions”
- Some parameters are too detailed (i.e. chemicals) and when used difficult to provide a correct value

## 7. Concluding remarks

- Participants were quite active, they provided several questions during the presentations, and asked for several clarifications;
- Public administrators are very interested in the possibility to have the energetic link between city and waste treatment especially if biological;
- As the tool was quite clear that is still in a developing stage it is important to modify some results provided correcting it because of some wrong calculation



or calculation approach, or by deducing the length of the number changing the unit;

- It would be important to provide the possibility to compare different scenarios with the actual situation;
- It would be good to have the evaluation of the carbon dioxide emitted but an LCA could be more appreciable
- When possible try to reduce the number of questions/interaction with the user to obtain the final result. This tool is not to design a plant but just to provide a rough overview of the available technologies and their possible application on a specific area.

## 8. Czech Republic

### 8.1. Key steps of the trainings

Čas	Program
9:00	Představení projektu REEF 2W
9:30	Představení pilotního zařízení pro výrobu biomethane realizovaného v Praze
10:30	Prezentace „TOOLS“ nástroje k hodnocení
11:30	Přestávka, občerstvení
12:00	Praktická ukázka využití „TOOLS“
12:30	Diskuse, náměty na zlepšení, zpětná vazba
14:00	Neformální diskuse během oběda

#### Agenda of the trainings

Each training was comprised of the same key parts. Training was moderated by Pavel Jeníček from UCT and Ondřej Benes from Veolia. At the beginning of the training, Pavel Jeníček presents the REEF2W project and concept, while Ondřej Beneš presents a pilot case which will be realized in Prague. Here, the different pilot sites and the specific fictive technological upgrades and their differences were presented. Zdeněk Varga introduces the Excel tool in the form of PowerPoint presentation (snapshots of the key parts of the tool), together with the ISA approach. This first part of the

training introduced the main goals of the project and give a short overview over REEF2W, the planned case study in Prague and ISA methodology. During the break we received first impressions from the audience.

After the break, Zdeněk Varga guided participants through the excel tool using the real data from WWTP Zlín like the example. After filling the tool with real data the report consisting of sections input data and the results were discussed in detail and questions and remarks from the audience were noticed and answered. During the discussion part the questionnaires were distributed and at the end of the training collected.

## 8.2. Participant profiles

	Name	Organisation	Expertise & background
1	Pavel Jeníček	UCT	Mr. Jeníček expertise concentrates on sludge management, wastewater treatment, anaerobic and biogas technologies. In REEF 2W, Mr. Jeníček is facilitating the trainings and their evaluation in Prague. He is head of Department of Water and Environmental Engineering of UCT Prague and IWA member in Management committee of Anaerobic Digestion specialists group
2	Dana Pokorná	UCT	Mrs. Pokorná specialization are anaerobic technologies, biogas treatment and upgrading. She has mostly assisted in preparing and implementing the meetings (e.g. through compiling the training materials and taking minutes)
3	Zdeněk Varga	UCT	Mr. Varga is project researcher and member of REEF2W tool developer sub-group. His expertise is anaerobic and innovative technologies in wastewater treatment and biogas upgrading.
4	Ondřej Beneš	Veolia	Mr. Beneš is project manager in Veolia ČR with wide expertise in technical, economical and legislation of wastewater treatment and innovative technologies with focus on sewage sludge treatment, energy and nutrient recovery, and among others biogas/biomethane production.
5	Tomáš Rosenberg	Bioprofit s.r.o	Mr. Rosenberg is expert in field of renewable energy and biotechnology with experience in the design and management of biogas plants.
6	Miroslav Kos	SMP CZ	Mr. Kos expertise concentrates on wastewater treatment technologies and sludge management, pyrolysis and gasification.



7	Eva Kalinová	ČIŽP	Mrs. Kalinová is part of Water protection Department of The Czech Environmental Inspectorate. Her expertise are microbiology and legislation related to water protection.
8	Filip Wanner	SOVAK ČR	Mr. Wanner is an expert in biological wastewater treatment and water quality. He senior assistant of The Water Supply and Sewerage Association of the Czech Republic (SOVAK ČR)
9	Michal Dohanyos	UCT Prague	Mr. Dohanyos has over 50 year's of research experience in field of wastewater treatment. His specialization among others are anaerobic technologies, biogas plants, bio waste, sludge management.
10	Petr Čech	PVK a.s	Mr. Čech is manager responsible for the operation of WWTP Prague.
11	Milan Lánský	PVK a.s	Mr. Lánský is head of Wastewater Technology department at PVK a.s. with more than 10 years of practical experience in operating WWTPs.
12	Tomáš Dvořák	PVK a.s	Mr. Dvořák is
13	Pavel Charvát	PVK a.s	Mr Charvát is Head of Energocentrum at PVK a.s.
14	Lenka Charvátová	PVK a.s	Mrs. Charvátová is wastewater technologist at newly built wastewater treatment plant of the Czech capital Prague.
15	Markéta Vacková	PVK a.s	Mrs. Vacková is wastewater technologist (specialist) at PVK a.s.
16	Ondřej Hrubý	PVK a.s	Mr Hrubý is Head of Operative Department of the WWTP Prague
17	Jiří Machovec	PVK a.s	Mr. Machovec is Head of the cleaning line and sludge management of the WWTP Prague
18	Jaroslav Škubala	PVK a.s	Mr. Škubala is operation supervisor of dewatering units at WWTP Prague
19	Tomáš Kysela	PVK a.s	Mr. Kysela is operation supervisor of anaerobic digestion at WWTP Prague

### List of trainings participants

As table shows, the pool of participants comprised mainly of experts in field of wastewater treatment and operational experts of WWTPs. Practical experience in engaging with wastewater treatment utilities was provided through Pražské vodovody a kanalizace a.s., Czech's largest water and wastewater treatment service provider. University of Chemistry and Technology is a long-standing partner to PVK and has led various research projects. Other participants are members of several prestigious



institutions active in the field of waste water treatment and management, designing of environmental facilities, renewable energy, environmental inspection and water protection.

### 8.3. Evaluation of questionnaires and verbal feedback

#### Questionnaires

At the end of the trainings participants was asked to fill the questionnaires. The evaluation of the questionnaire is summarized in the Annex in the form of pie charts.

It is clear from the questionnaires that the participants thinks that REEF 2W goals and ideals are excellent or good. At the same time, they think that the training itself fulfilled its purpose (100%) and the information received during the training was evaluated by the participant as good (100%). But the tool itself was rated mainly as good or sufficient in most of the ways as result of the mistakes still occurring in the TOOL and evaluation of final report of the tool varied from poor to good (40% poor, 20% sufficient, 40% good). The audience also think that the information requested are not so easy to find and provide (60% No). Most of the participants positively evaluated that the TOOL is able to describe possible future development (40% excellent, 40% good) and is capable of provide good set of technologies which could be implemented.

#### Verbal Feedback

##### Starting Section

- The welcome message is too long and insignificant. It should be shorter and more percussive.
- It is not easy to understand how you should proceed with filling on the front page. The tool should prompt you for the part you need to fill out (step by step).
- It is not clear what information is necessary for the entire tool and which are necessary only for its parts or have just informative character only.
- The colour coding for the cells to be filled varies in each part of the tool (gray, white, green). Colours should be united and with legend.

##### Wording, readability and units of measurement

- Some parts of the text on Home page is hard to read .
- Missing units in some inputs (e.g.: economic tool).





- Decimal comma vs decimal point. Should be warned that if you are using comma it can cause errors with the TOOL and erase everything (Default values are inserted with decimal point which must be replaced with comma or the TOOL need will not be working) .
- The tool needs to check typed in values and inform users if these are wrong/to cause errors.
- The list of abbreviations used in the tool should be available.

### Results Section

- The Result report should be shorter and just with relevant results. The zero values or parts which were not asked shouldn't be visible.
- Colour coding for different part will be helpful for orientation.
- The possibility of comparing more scenarios should be added and maybe some base level like WWTP without REEF2W technologies and with implemented just some of them.
- Some of the results provided by the TOOL are very strange and different to reality.
- The tool is mixing data about WWTP and new add-on technologies and substrates. Therefore the results are confusing in terms of difference between old and new.
- It should also take into account legislation

### EE/RES

- Biogas upgrading: there is status quo and future situation in % should be possible use even the units (Nm<sup>3</sup>/time). Therefore the current total biogas production of WWTP should be incorporated and shown in this table.
- Some wastes need pre-treatment should be warning when input is asked. Also some of them are quite unusual for WWTP and actually WWTP need pay for them.
- Why is the composition of the substrates queried?
- Wind power is missing in RES.
- There are more technologies and options which should be added like sludge drying (conventional, solar...), sludge incineration, possibility to change organic loading rate.
- It is not clear what Total heated surface are mean.

### UCA

- There is not clear what grid length mean. Should be explained.
- The distanced of grid for biomethane injection and heat could be different.
- UCA inputs and results generally should be explained in more details.



### Economic Tool:

- The transportation cost should be incorporated.
- Missing units. Should be clear.
- Subsidies even for other type of RES should be incorporated.
- Economic tool should be vomited and should be use complex financial analysis tool

### LCA

- Possibility to add other external organic substrates besides methanol.
- It is the amount asked for pure chemicals or solutions?

### 8.4. Concluding remarks

- The participants at both trainings sessions were active and asked questions even during the trainings. Asked Questions show that participants **are interested in the functioning of the TOOL** and gave many suggestions to improve it.
- The evaluation of the questionnaire showed that **it is still necessary to work on the tool**. From the perspective of the **user interface** as well as from **the content and interconnection** of individual modules.
- It is necessary to **remove disturbing aspects** from report and give the tool more **user friendly and pleasant look**.
- Give option to **see more scenarios at once** and possibility to compare them with situation when no new technologies are added.

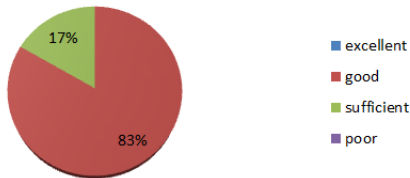


## 9. Annex

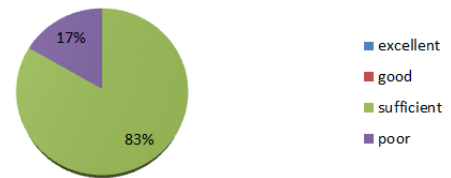
### Germany

#### Evaluation of the the project and the tool

**The TOOL is able to collect the most relevant technologies available in your plant useful to describe the energetic aspects?**



**Are the “Dialog Box”s enough clear and able to describe which information or action requested?**



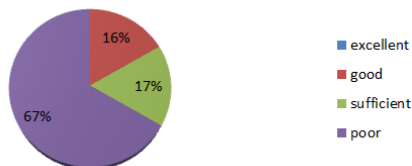
**The TOOL is able to provide a good set of technologies available on the market that could be implemented in your plant?**



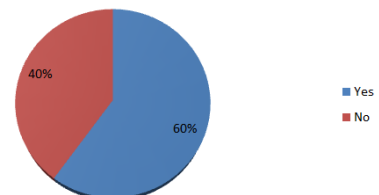
**How much is this part of the Tool able to describe possible future development of your interesting area?**



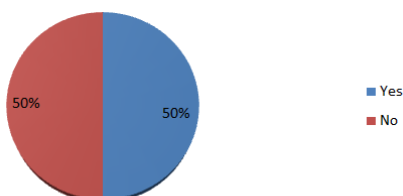
**Are the values requested and suggested understandable and on line with your situation?**



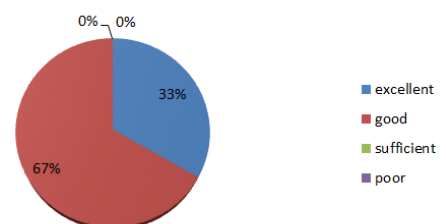
**Are value requested easy to collect?**



**Are requested information easy to find / provide?**

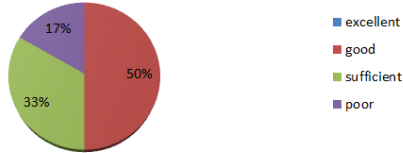


**What do you think of the REEF2W ideas and goals?**





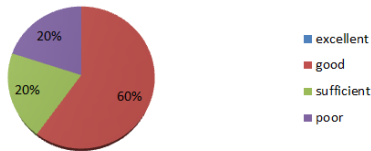
**Are requested information sufficient to describe and recognise the considered plant in future?**



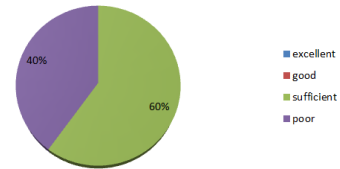
**Are the results provided sufficiently clear to decide if there is an advantage in the panorama designed and proceed with further evaluations?**



**Are evaluation proposed in the project able to provide you sufficient information?**

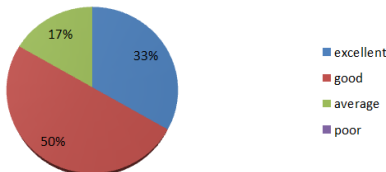


**Is the report easy to understand?**

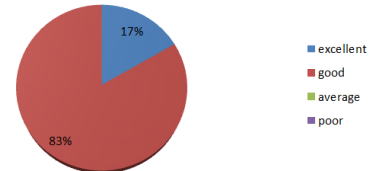


**Evaluation of the training**

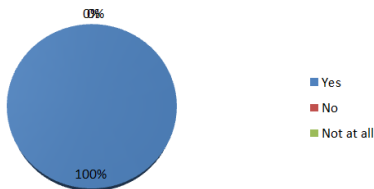
**How would you rate the event communications leading up to the event**



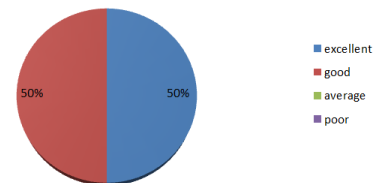
**How would you rate the completeness of information given before the event**



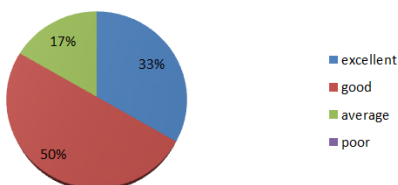
**In your opinion, did the training course meet its objectives?**



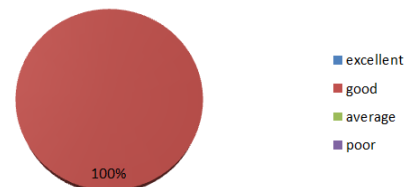
**How do you rate the overall quality of the speakers?**



**How would you rate the value of this training course?**

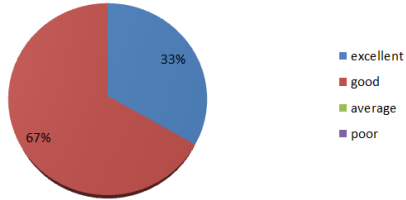


**How beneficial was the information presented at this event?**

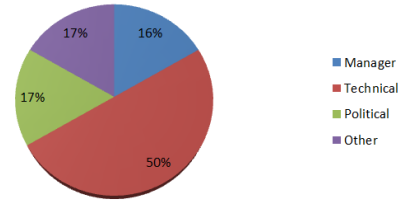




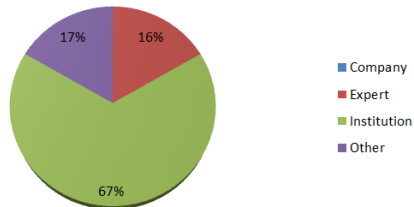
**How would you rate your overall experience?**



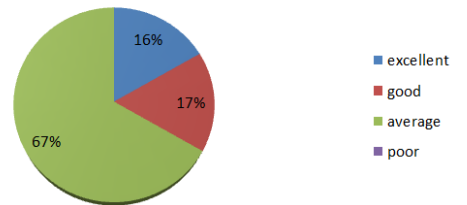
**Which is your role:**



**Are you a:**




**How would you rate the quality of the networking at this event?**





## Austria

Results of the the questionnaire (digitalised based on the manually filled version)



**Customer satisfaction questionnaire**

a) How would you rate the event communications leading up to the event:

excellent     good     average     poor

b) How would you rate the completeness of information given before the event:

excellent     good     average     poor

c) In your opinion, did the training course meet its objectives?

yes     no     not at all

d) How beneficial was the information presented at this event?

excellent     good     average     poor

e) How would you rate the value of this training course?

excellent     good     average     poor

f) How do you rate the overall quality of the speakers?

excellent     good     average     poor

g) How would you rate the quality of the networking at this event?

excellent     good     average     poor

h) How would you rate your overall experience?

excellent     good     average     poor

i) Comments:.....  
.....



.....

**j) Are you a:**

<input type="checkbox"/> Company	<input type="checkbox"/> Expert	<input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Other: .....
----------------------------------	---------------------------------	---	---------------------------------------

**k) Are you a:**

<input type="checkbox"/> Company	<input type="checkbox"/> Expert	<input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Other: .....
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**l) Which is your role:**

<input checked="" type="checkbox"/> Manager	<input type="checkbox"/> Technical	<input type="checkbox"/> Political	<input type="checkbox"/> Other: .....
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## First training course

### Technical satisfaction questionnaire

#### 1. Graphical aspects

1.1. Is the graphical design of the tool pleasant

excellent       good       sufficient       poor

1.2. Is the report easy to read

excellent       good       sufficient       poor

1.3. Is the report easy to understand

excellent       good       sufficient       poor

1.4. Are on line provided information easy to use and understandable?

excellent       good       sufficient       poor

#### 2. Required information at the user

2.1. Are requested information sufficient to describe and recognise the considered plant in future?

excellent       good       sufficient       poor





2.2. Which could be the professional figure more competent in your company/administration to fill the questionnaire for the technical information required?

*Technical expert*

2.3. Are the "Dialog Box"s enough clear and able to describe which information or action requested?

excellent       good       sufficient       poor

2.4.

excellent       good       sufficient       poor

### 3. Technology approach

3.1. The TOOL is able to collect the most relevant technologies available in your plant useful to describe the energetic aspects?

excellent       good       sufficient       poor

3.2. The TOOL is able to provide a good set of technologies available on the market that could be implemented in your plant?

excellent       good       sufficient       poor

3.3. Which renewable energy are you mainly focusing on?

*Waste Water Heat*



3.4. What are other interesting technologies the tool should cover?

\_\_\_\_\_

#### 4. Urban Compatibility Assessment

4.1. How much is this part of the Tool able to describe possible future development of your interesting area?

excellent       good       sufficient       poor

4.2. Are the values requested and suggested understandable and on line with your situation?

excellent       good       sufficient       poor

4.3. Are final results presented in the REPORT clear enough to help for future decisions?

excellent       good       sufficient       poor

#### 5. Economical evaluation

5.1. Are requested information easy to find / provide?

YES       NO

5.2. Are the results provided sufficiently clear to decide if there is an advantage in the panorama designed and proceed with further evaluations?

excellent       good       sufficient       poor



## 6. Environmental evaluation

6.1. How are environmental evaluations a relevant aspect in your decision tree?

excellent       good       sufficient       poor

6.2. Are evaluation proposed in the project able to provide you sufficient information?

excellent       good       sufficient       poor

6.3. Are value requested easy to collect?

Yes       No

## 7. General aspects

7.1. What do you think of the REEF2W ideas and goals?

excellent       good       sufficient       poor

7.2. What do you think is missing in the REEF2W approach?

\_\_\_\_\_

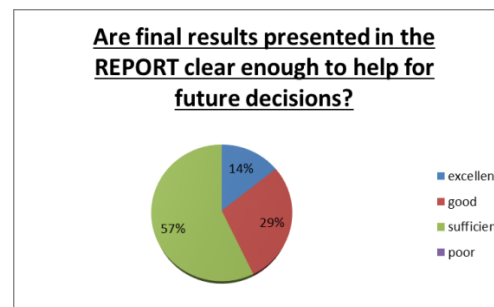
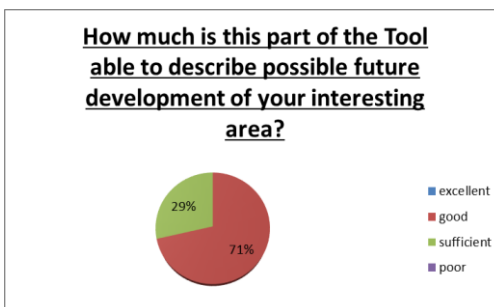
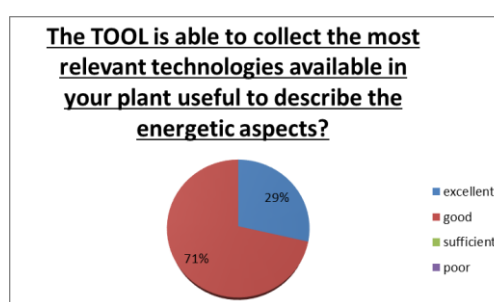
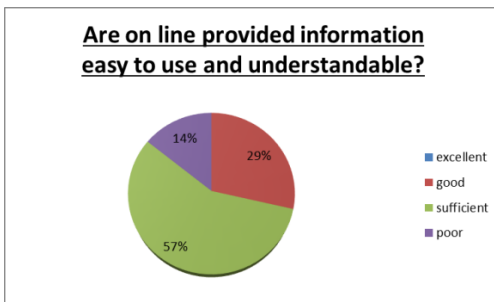
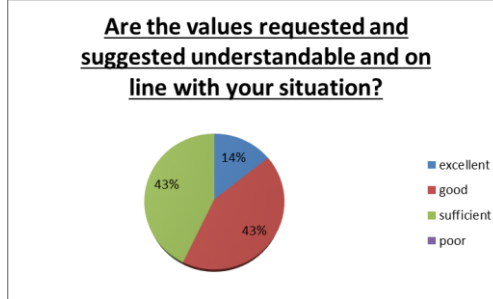
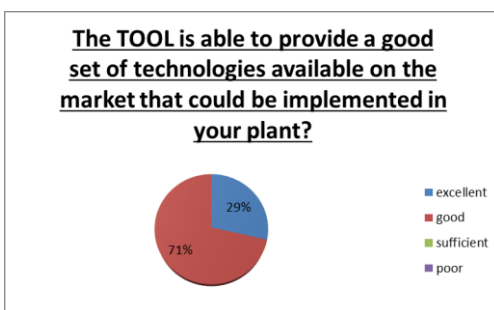
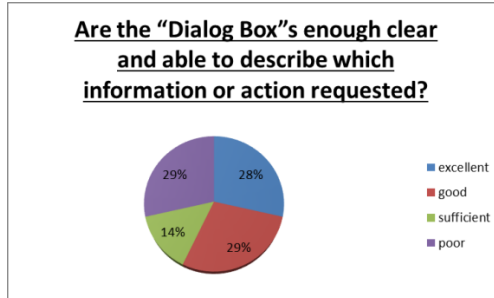
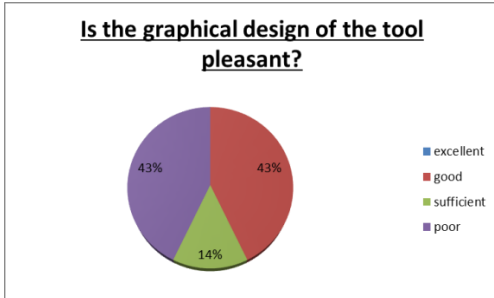
7.3. What aspects in the REEF2W approach (e.g.: UCA; LCA; economic evaluation, energy efficiency, etc. ) can be neglected?

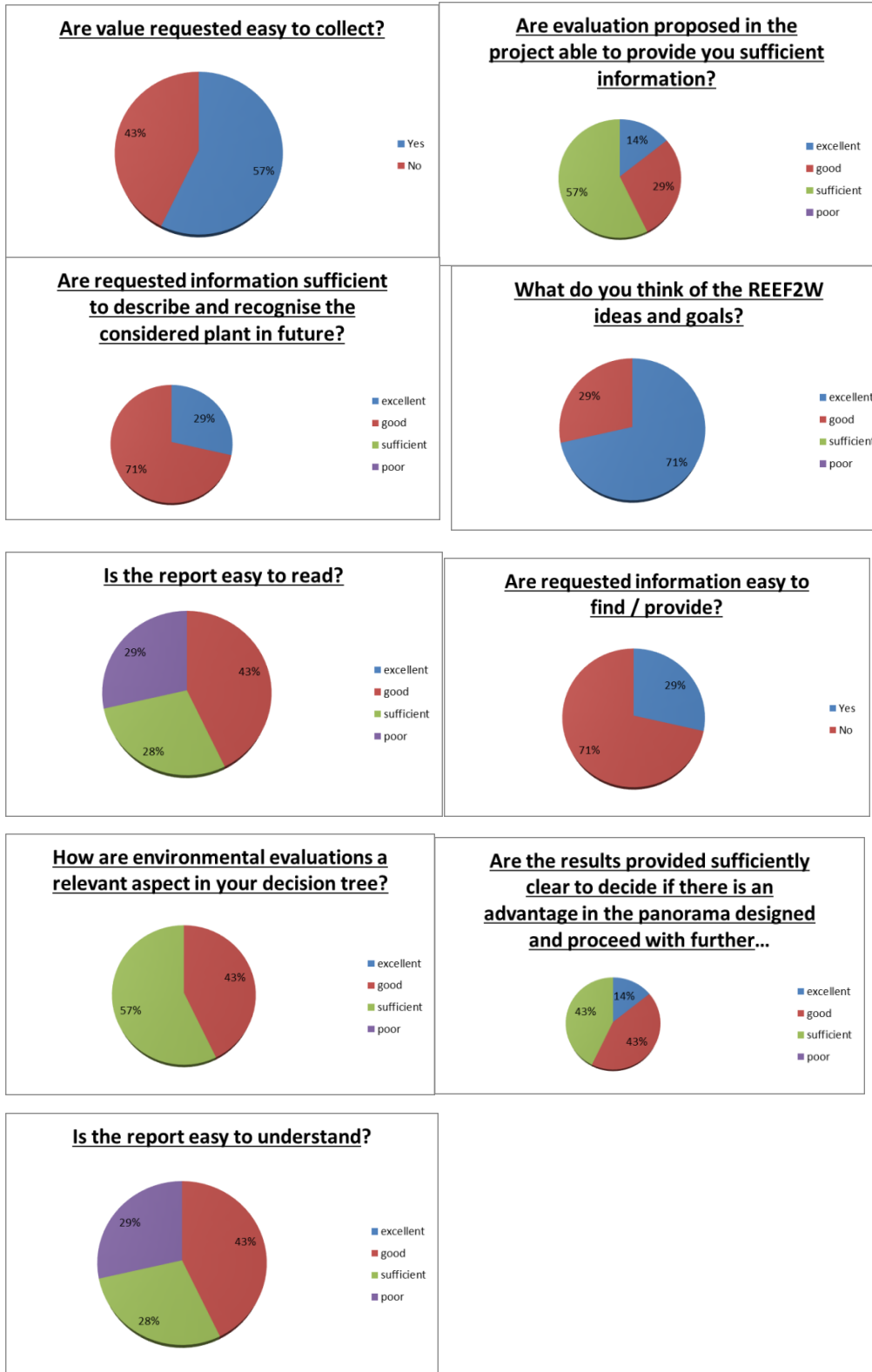
*Energy Consumption Benchmark*  
\_\_\_\_\_

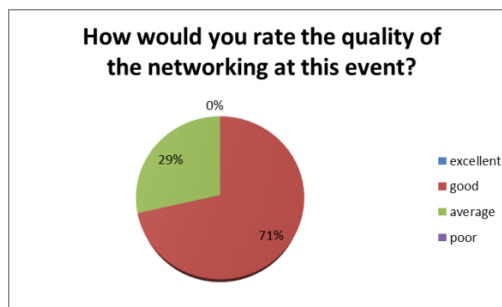
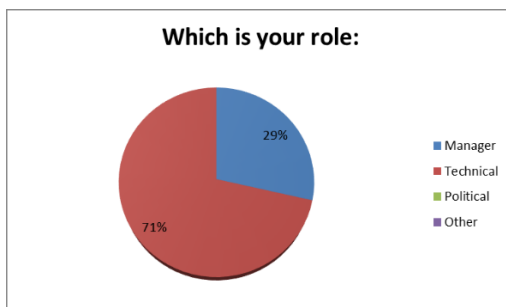
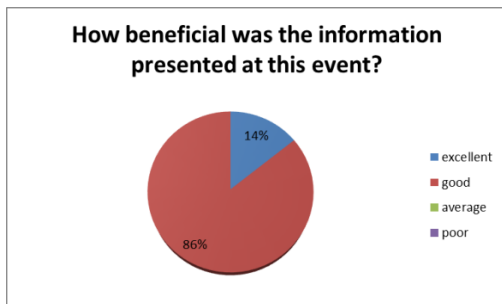
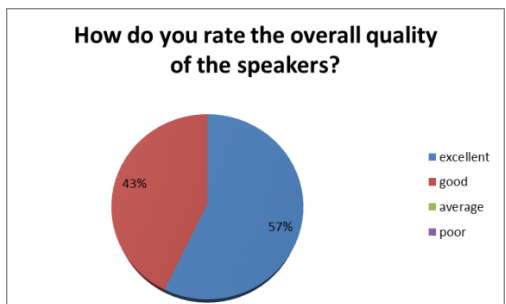
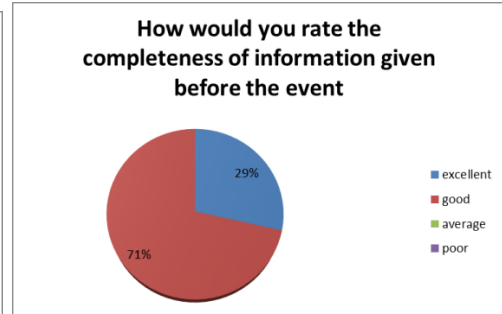
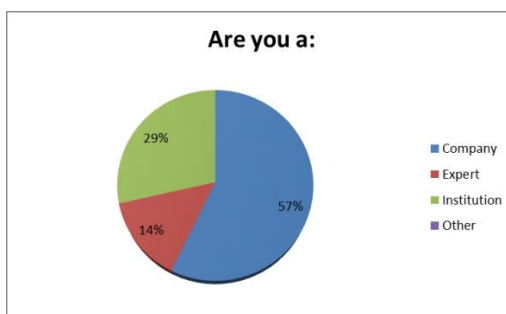
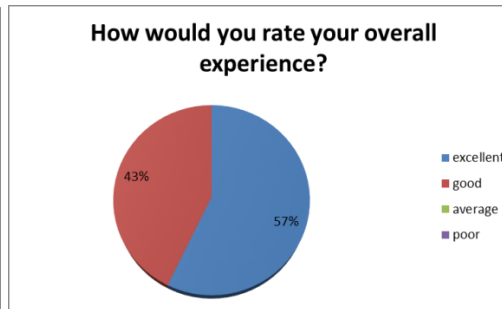
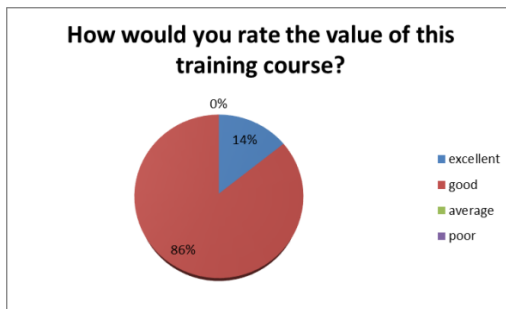
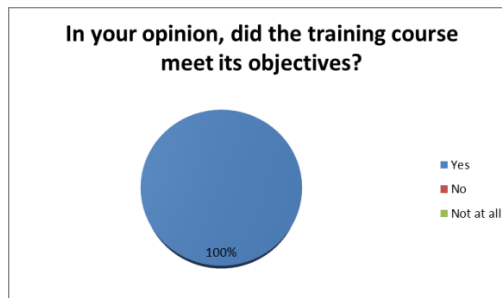
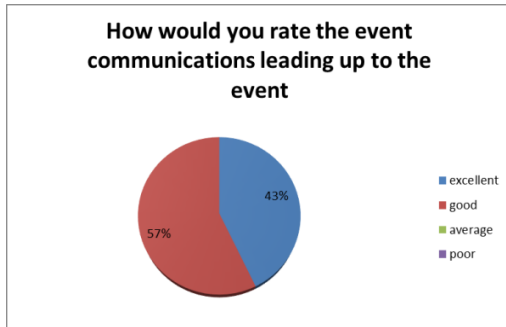


## Croatia

### Evaluation of the project and the tool



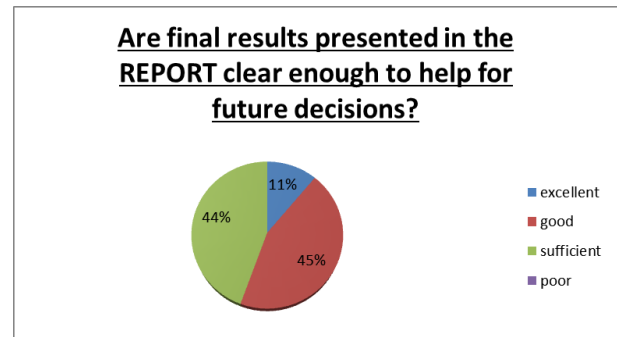
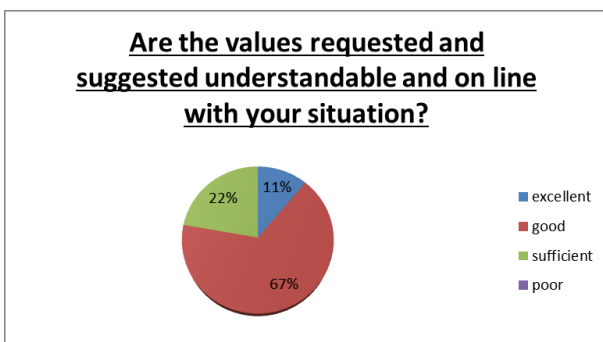
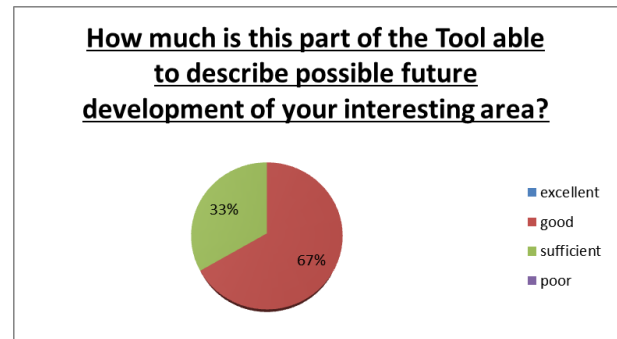
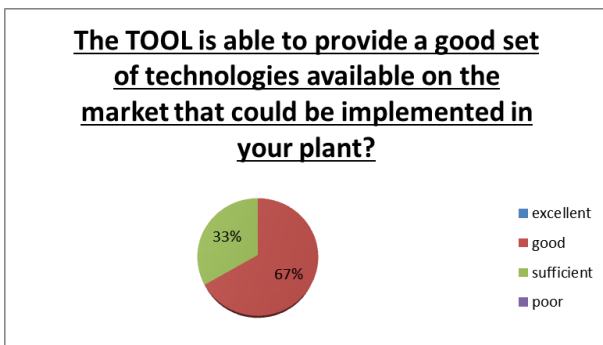
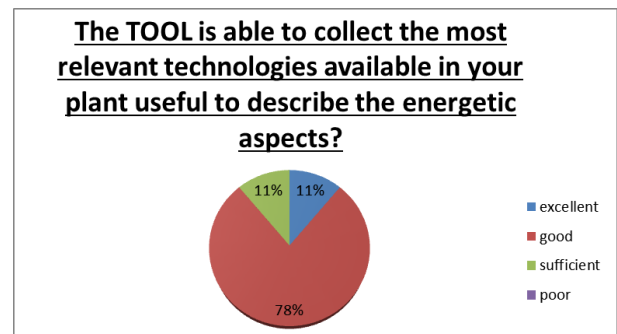
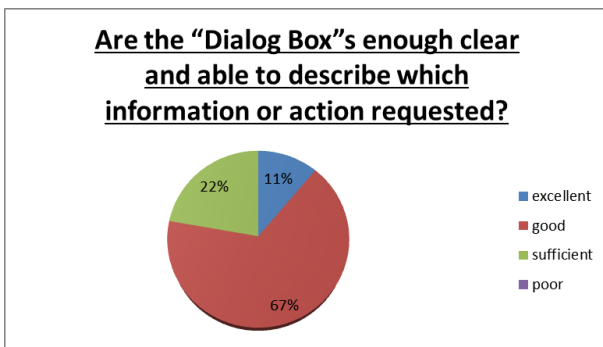
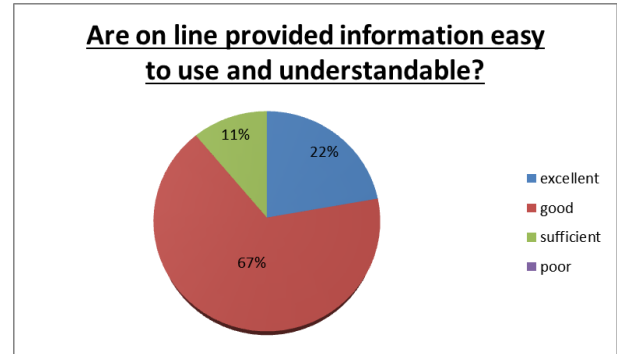
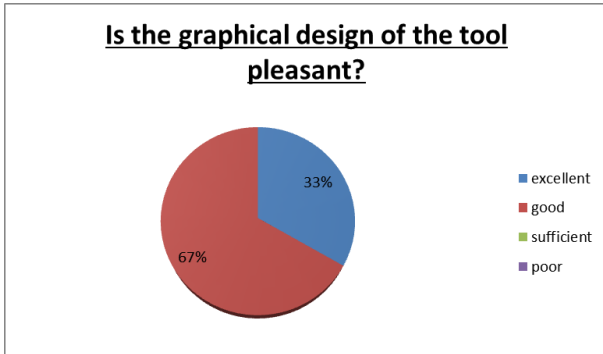






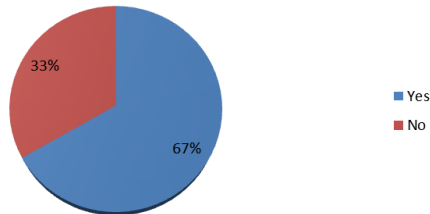
## Italy

### Evaluation of the the project and the tool





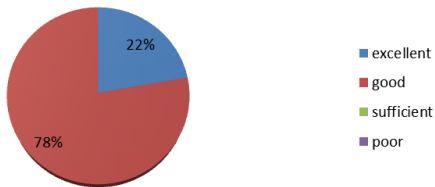
**Are value requested easy to collect?**



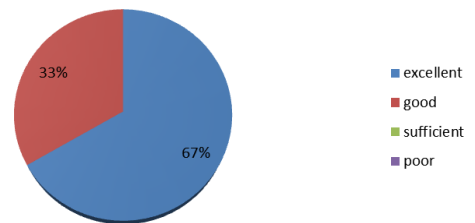
**Are the results provided sufficiently clear to decide if there is an advantage in the panorama designed and proceed with further evaluations?**



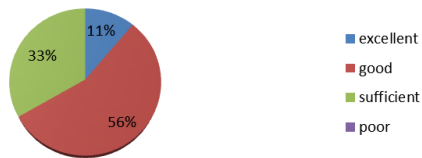
**What do you think of the REEF2W ideas and goals?**



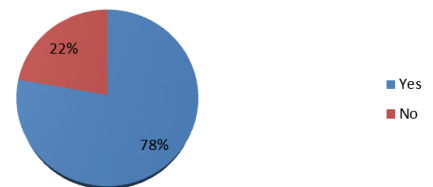
**Is the report easy to understand?**



**Are evaluation proposed in the project able to provide you sufficient information?**



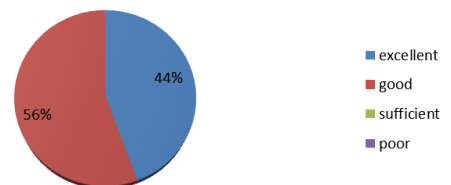
**Are requested information easy to find / provide?**



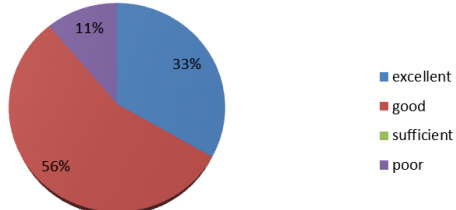
**Are requested information sufficient to describe and recognise the considered plant in future?**



**How are environmental evaluations a relevant aspect in your decision tree?**



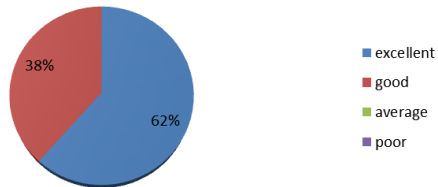
**Is the report easy to read?**



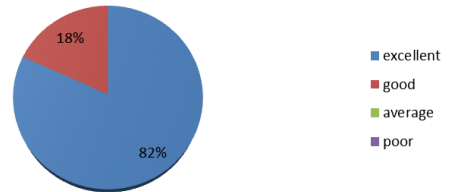


## Evaluation of the training

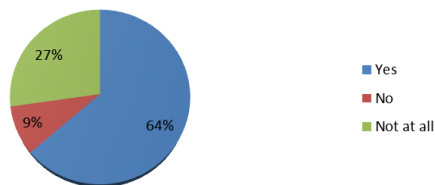
How would you rate the value of this training course?



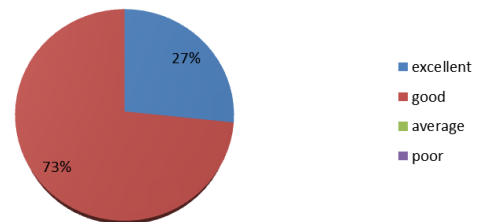
How would you rate the event communications leading up to the event



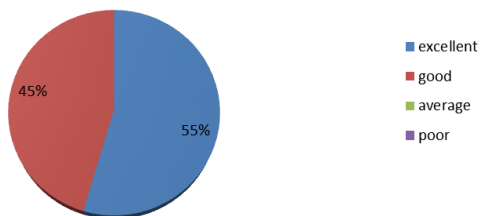
In your opinion, did the training course meet its objectives?



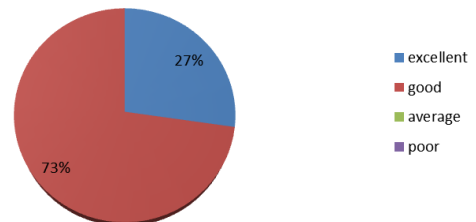
How would you rate your overall experience?



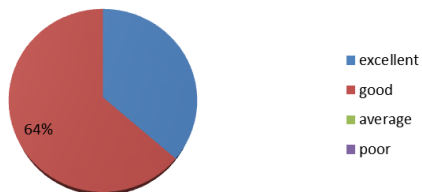
How would you rate the completeness of information given before the event



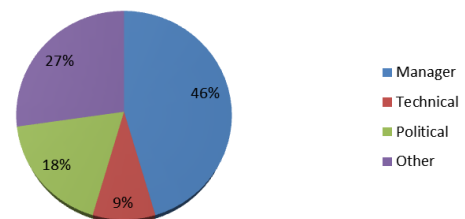
How do you rate the overall quality of the speakers?



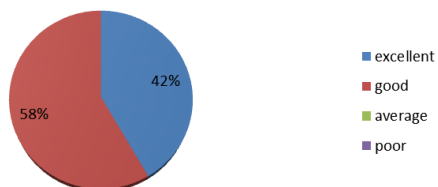
How beneficial was the information presented at this event?



Which is your role:



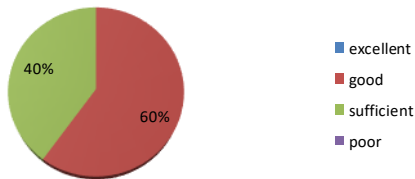
How would you rate the quality of the networking at this event?



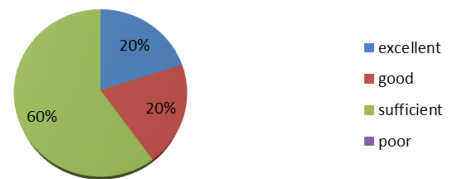
## Czech Republic

### Evaluation of the the project and the tool

**The TOOL is able to collect the most relevant technologies available in your plant useful to describe the energetic aspects?**



**Are the "Dialog Box"s enough clear and able to describe which information or action requested?**



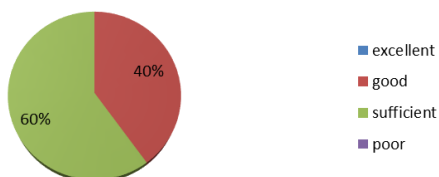
**The TOOL is able to provide a good set of technologies available on the market that could be implemented in your plant?**



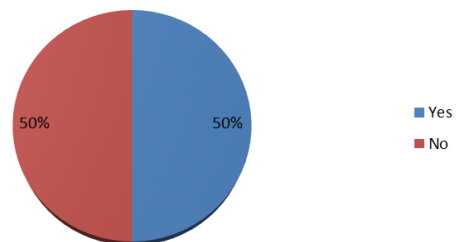
**How much is this part of the Tool able to describe possible future development of your interesting area?**



**Are the values requested and suggested understandable and on line with your situation?**

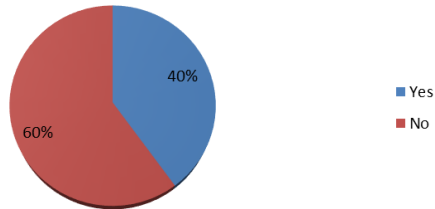


**Are value requested easy to collect?**

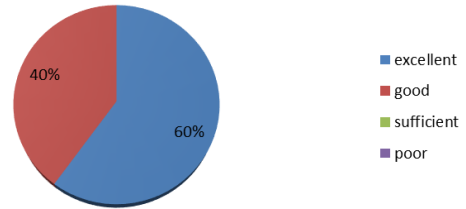




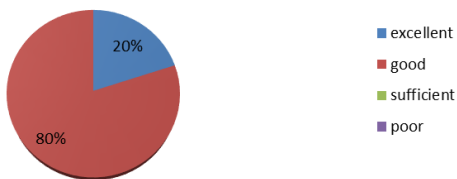
**Are requested information easy to find / provide?**



**What do you think of the REEF2W ideas and goals?**



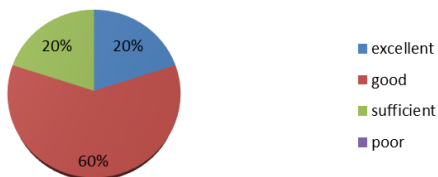
**Are requested information sufficient to describe and recognise the considered plant in future?**



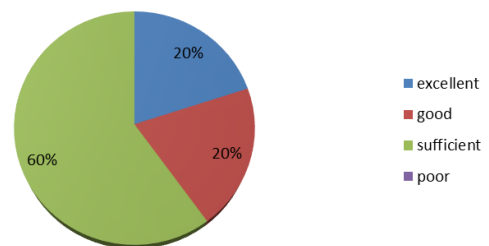
**Are the results provided sufficiently clear to decide if there is an advantage in the panorama designed and proceed with further evaluations?**



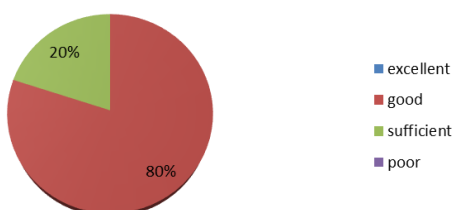
**Are evaluation proposed in the project able to provide you sufficient information?**



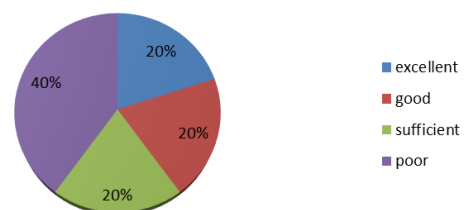
**Is the report easy to understand?**



**Is the graphical design of the tool pleasant?**



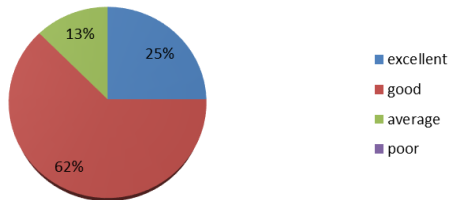
**How are environmental evaluations a relevant aspect in your decision tree?**



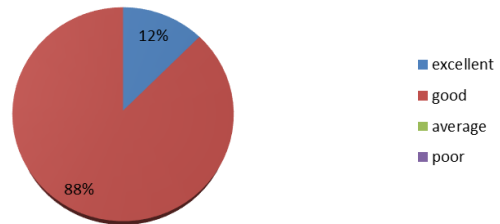


## Evaluation of the training

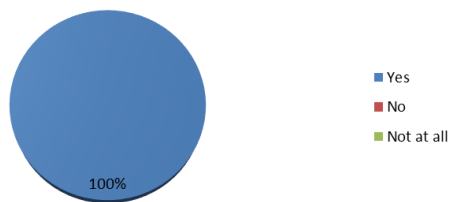
**How would you rate the event communications leading up to the event**



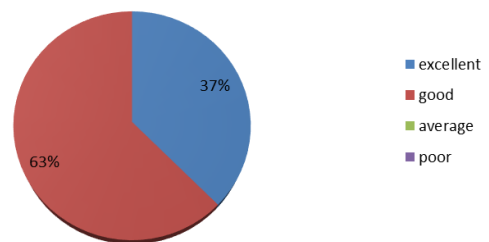
**How would you rate the completeness of information given before the event**



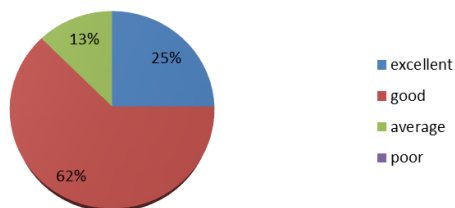
**In your opinion, did the training course meet its objectives?**



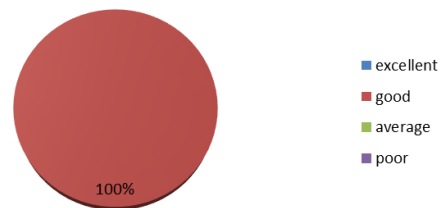
**How do you rate the overall quality of the speakers?**



**How would you rate the value of this training course?**

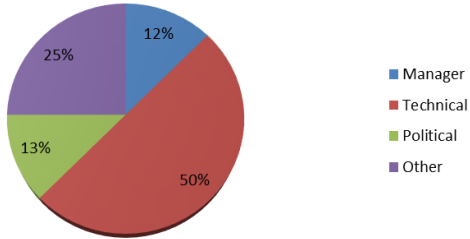


**How beneficial was the information presented at this event?**

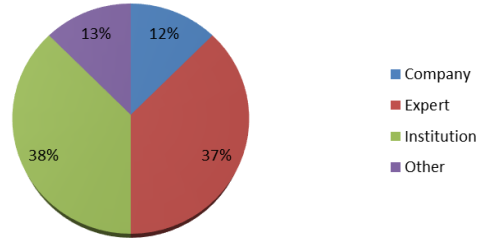




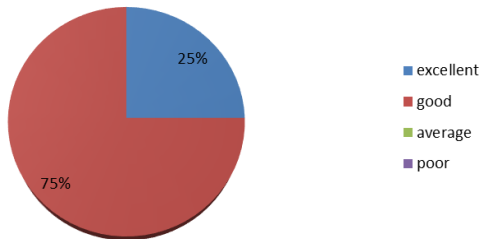
**Which is your role:**



**Are you a:**



**How would you rate your overall experience?**



**How would you rate the quality of the networking at this event?**

