

## Renewable Energy Systems

the theme for the PACITA summer school on TA, Liège, Belgium,  
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The summer school "Renewable Energy Systems: Role and Use of Parliamentary Technology Assessment" was the first European Summer School with a pure focus on technology assessment. The aim of the three-day long summer school of the European project *Parliaments and Civil Society in Technology Assessment* (PACITA) <sup>15</sup> was to create awareness of the potential of technology groups in Europe. Therefore, the summer school involved keynotes, practical exercises, mutual reflection, cutting edge training and networking to deal with the theme of renewable energy systems out of the perspective of Technology Assessment (TA), to meet transition objectives or to critically assess energy technologies.

As mentioned in the presentation document for the summer school, it was said that "it was chosen to have the summer school around the specific topic of renewable energy systems to get away from purely abstract and theoretical consideration and organise the summer school around a specific and graspable topic. For the current and coming generations, renewable energies are probably one of the biggest challenges for policy, economy and society worldwide. However, this is not without its own questions: it embarks upon a variety of issues such as energy independence and security, climate change, sustainability, competitiveness, quality of life and a greater accessibility and justice in the distribution of scarce natural resources".

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<sup>15</sup> [http://www.pacitaproject.eu/?page\\_id=1347](http://www.pacitaproject.eu/?page_id=1347)

## Organization

The summer school was organized by the SPIRAL Research Centre of the Department of Political Science at the University of Liège<sup>16</sup> and took place at Château de Colonster situated outside Liège (Belgium) in the hillside. Each day consisted of commonly attended plenary sessions and applied workshops made up of two fixed smaller groups. The workshops were hosted by expert TA practitioners and members of the PACITA consortium, who were also supervising the training sessions and assisting all participants at all stages. Each morning started with a keynote speech followed by a workshop session, with the same sequence repeated in the afternoons. One of the main intentions of the organizers, besides imparting knowledge about Parliamentary Technology Assessment (PTA), was to enable an exchange in experiences and networking among participants. Having this in mind, two dinners and two impressive sightseeing tours of Liège were planned and offered by the hosts.

The summer school is intended for any potential user of *Technology Assessment* in Europe (and even beyond), in countries or regions with no formalised PTA bodies. There is a whole body of societal actors likely to engage with or be affected by technology assessment (TA) practices or outcomes. Each of them finds out its own interest in the TA process and its products. The summer school proposed to take advantage of this diversity of TA users' expertise and professional backgrounds. Thus, the target groups included policy-makers, academics in relevant fields, PhD students, research fund secretaries, R&D professionals, science policy officers, civil society organizations involved in policymaking, leading members of relevant NGOs, industrialists, social partners, customer organizations and science writers or journalists. In total, 35 participants from 7 non-PTA (non-parliamentary TA) countries (Belgium/Wallonia, Portugal, Ireland, Bulgaria, Lithuania, Czech Republic and Hungary) were selected based on their profile (*curriculum* and motivation letter).

A literature *portfolio* was suggested as background readings to the participants. In total fifteen texts were provided, distributed by three sections: TA in general, TA and TA methods and TA-like publications on Renewable Energy Systems.

## Lectures and Presentations

On the 25<sup>th</sup> of June the Summer School started with an welcome address from Catherine Fallon, (head of SPIRAL-ULiège) followed by Pierre Delvenne, also from the SPIRAL research centre. His intervention was on the introduction to the PACITA project.

The summer school included four lectures over three days which provided the

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<sup>16</sup> <http://www.spiral.ulg.ac.be/>

basics for the workshop sessions. The training days were alternated between plenary sessions and applied workshops in smaller groups. Expert TA practitioners and members of the PACITA consortium supervised the training sessions and assist the participants at all stages along the process.

The first lecture consisted of a brief introduction to technology assessment held by Johan Evers, project manager at the Flemish Institute Society and Technology-IST, Brussels. The introduction first gave a general overview of TA (stakeholders, TA modes and functions, etc.) because the participants were an international mix of individuals with different backgrounds that were not, or only partially, related to TA. Later on in his presentation, Johan Evers focused on renewable energies, PTA and energy technology assessment within Europe. Evers concluded that TA was a socio-technical methodology that could significantly assist in providing inspirational, best available and relevant knowledge of different stakeholders in society.

The next lecture "The Problem Definition and the Research Design in TA: The Case of E-Mobility" was held by António Moniz (researcher at the German Karlsruhe Institute of Technology – ITAS, and professor at Universidade Nova de Lisboa). The first question during this session was how to address and define a specific problem in order to become a subject of TA. Another question focused on clarifying whether ecological awareness and the energy problem could be covered by TA. Several TA cases were presented and discussed (POST<sup>17</sup>, STOA<sup>18</sup>, TAB<sup>19</sup>, NSF<sup>20</sup>, and DBT<sup>21</sup>). The issue of TA-specific problem definition was explained with the example of electric mobility. The example proved helpful to understand the related scientific approach based on TA and how to use different research designs (exploratory, descriptive, causal) and methods (citizen consultation, stakeholder involvement, expert analysis, etc.). Finally, two controversial cases were discussed in the lecture: the Karlsruhe tram-train system and the Portuguese MOBI.E program.

The third lecture on "The Method Toolbox for Technology Assessment: From Science to Dialogue" was held on the second day by Danielle Bütschi (TA-SWISS<sup>22</sup>). The aim of the lecture was to present the variety of commonly used TA methods and included the presentation of three classes of TA (scientific TA methods, communication TA methods and interactive methods). After explaining different methods within the three TA classes, like the Delphi survey or scenario-based analysis among others, the lecture focused on the question how to pick the right method. The choice of the right method depends on various factors, such as the institutional setting, the issue to be assessed, the political and social context as well as the development stage of the technology in question, etc. One recommendation made by Bütschi was to design a TA project using an individualized method and not to apply an existent TA method. The TA toolbox also varies depending on the respective institution and can be filled with innovative tools.

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<sup>17</sup> Parliamentary Office of Science and Technology (United Kingdom)

<sup>18</sup> Science and Technology Options Assessment Committee of the European Parliament

<sup>19</sup> Technology Assessment at the German Parliament (Bundestag)

<sup>20</sup> National Science Foundation (United States)

<sup>21</sup> Danish Board of Technology

<sup>22</sup> Swiss Centre for Technology Assessment

The lecture "Communication Work and the Strive for Impact" by Jurgen Ganzevles (Dutch Rathenau Institute) focused on effective communication of TA results to society. During the lecture different basic communication models and related communication obstacles were presented. Jurgen Ganzevles then focused on communication work and the impacts of various communication tools. These can be products (e.g. reports, books, etc.), targeted approaching (e.g. parliamentary expert meetings or Knowledge Chambers at ministries, etc.), or broad campaigning (e.g. launching events, opinion articles, radio and television, etc.). Illustrations from the "Energy in 2030" project of the Rathenau Institute were given for a better understanding of communication impacts. The final conclusions were that facts and opinions have to be translated carefully into relevant policy, that broad campaigning is a way to attract the attention of politicians, and that there should be substantial media training and coaching of TA researchers.

The final presentation was titled "Concluding Remarks from a Non-PTA Country: Insights and Future Directions" and was held by Paidi O'Reilly (University College Cork). The Irish expert started with a general introduction to PTA within Europe (diversity in the TA landscape, differences in models) and then presented a valuable overview of the PTA situation in different European countries (e.g. classification of PTA institutions in different countries into parliamentary committees, parliamentary offices/units or independent institutes etc.). At the end of his lecture, O'Reilly addressed three questions that are strongly related to the workshop aims and exercises:

- How should Ireland and other non-PTA countries institutionalize TA?
- What is the "business case" for such a TA institution?
- What should Ireland and other non-PTA countries learn from existing TA institutions?

The presentation finished with a discussion on factors effecting the further institutionalization of TA in Ireland. The central questions concerned the institutional setting (e.g. parliamentary vs. non-parliamentary TA, etc.) and structure and state of the innovation process (e.g. state- vs. market-driven innovation etc.).

## **Workshops**

During the workshop sessions (four in total), the different target groups had the opportunity to put into practice the different aspects of the lectures and also to actively interact with workshop facilitators around various TA assignments. According to the summer school organisers the aim was to give an overview of how TA projects are set up and executed. The participants were encouraged to rely on their own disciplinary expertise (such as ethics, law,

political and social sciences, STS, natural or applied sciences) and/or experience (as policy-makers, civil society organizations, media, etc.). The workshops are organized in order to reflect on the various possibilities offered by TA according to different mandates and demands.

The workshop groups were separated into two different tasks, named "Global Citizens on Renewables" and "Renewables for Cities". Each group was hosted by an expert and had to briefly present its results after every workshop session to all other participants in the auditorium. Additionally, among the participants of each workshop three were drawn by lot, and then endowed with special tasks to facilitate the actions of the workshop and summarize the outcomes of each day. The aim of the workshops was to develop a TA institution and to elaborate a TA project on renewable energy in cities in a non-PTA country. Thus, the first step was to build a scenario for renewable energy, choosing a non-PTA country and city. In this case, the city of Sofia in Bulgaria was chosen to setup the project. Appropriate technologies for use in urban areas had to be specified in one of the working groups and to choose which (photovoltaic power generation).

The different exercises in the workshop were based not only on the defined scenario but also on the lectures given before, including e.g. defining the problem (why renewable in cities), establishing a business and a working plan, and developing a method to integrate different stakeholders, a communication plan, etc. The workshops made a great contribution to a better understanding of the difficulties and complexity of a TA process and the problems that may arise, as we can read on this first personal testimony of a participant:

*"Imagine you came from a non-PTA country... You are trying to learn and absorb as much as you can ... And on the first day I was randomly selected to play the role of a TA Project Manager. Panic! Absolute panic! Day one was difficult... Never managed a project... Day two got better... You have to be inside the core of the TA, surrounded by other colleagues to better understand what it takes and what is necessary to deliver a TA project. It is not easy! It takes knowledge and practice. On the third day a TA project was born! In the end, as a TA PhD student this experience was the best experience in all summer school events. Having a specific task as an example gave me the opportunity to dis-inhite my knowledge in TA, seek for new perspectives, interact with colleagues, and learn from their experiences. Also the themes addressed where not within the some field of my personal research, it was very enriching to understand how TA can be applied in other field and the different methods used. The role play helped me to understand the difficulties when developing a TA project and how to overcome them. It reassured me that we do not work alone! TA implies a multidisciplinary team and therefore different knowledge backgrounds. Due to the project plan template I was able to practice all different steps needed in a project. It was an absolutely amazing experience."*

At the end of the summer school, all results of the two working groups and their individual sessions were summarized and combined to a full TA process in a final presentation, including a short news announcement as well as an interview with the “spokesperson”. The final results were then collectively discussed, which helped the participants to experience the problems that can occur in a TA process.

## Conclusion

Some of the highlights of the summer school were the excellent organization and the dynamic, interactive concept, which was well adapted to the variety of participants with diverse backgrounds. Our local hosts demonstrated a strong personal commitment and burning joy to making this summer school a lasting and valuable event for all. The lectures were of good quality and appropriate content, providing a good overview and relevant examples of TA within Europe related to renewable energies. The interactive workshop concept proved adequate to give an introduction to TA processes, and to help understanding their development by going through each steps in practice. The chosen format fostered a spontaneously creative and very vivid output generation in the group. The additional evening program induced an enriching group dynamic, which made it easy to discuss and work in a comfortable and professional atmosphere combined with a strong exchange of ideas and insights across the disciplines and nationalities.

The examples brought to the summer school, the different experiences shared and the practical training offered during the summer school, were particularly enriching for students and professors coming from countries where PTA already exists as well as from non-PTA countries. Overall, the European project PACITA has been particularly transformative of the TA landscape in Europe for those who were fortunate to be engaging in its activities.

## References

Enzing, C. et al., 2012, *Technology Across Borders - Exploring perspectives for pan-European Parliamentary Technology Assessment*, Brussels, EPTA

- Greene, David L. & K.G. Duleep & Walter McManus, 2004. Future Potential of Hybrid and Diesel Powertrains in the U.S. Light-Duty Vehicle Market, *Industrial Organization* 0410003, EconWPA.
- Högberg, Martina, 2007. Eco-driving? A discrete choice experiment on valuation of car attributes, *Working Papers* 2007:13, Swedish National Road & Transport Research Institute (VTI).
- Moniz, António B. & Margarida R. Paulos, 2008. Futures of automobile industry and challenges on sustainable development and mobility, *IET Working Papers Series* 04/2008, Universidade Nova de Lisboa, IET-Research Center on Enterprise and Work Innovation, Faculty of Science and Technology.
- Mytelka, Lynn K., 2003. New Wave Technologies: Their Emergence, Diffusion and Impact. The Case of Hydrogen Fuel Cell Technology and the Developing World, *Discussion Papers* 3, United Nations University, Institute for New Technologies.
- Oltra, Vanessa (E3i-IFReDE-GRES) & Maïder Saint-Jean (E3i-IFReDE-GRES), 2006. "Variety of technological trajectories in low emission vehicles (LEVs): a patent data analysis," *Cahiers du GRES* 2006-20, Groupement de Recherches Economiques et Sociales.
- Parry, Ian W.H. & Walls, Margaret & Harrington, Winston, 2007. "Automobile Externalities and Policies," *Discussion Papers* dp-06-26, Resources For the Future.
- Percoco, Marco 2007. Urban Transport Policies and the Environment: Evidence from Italy, *Working Papers* 2007.59, Fondazione Eni Enrico Mattei.
- Steyaert, Stef and Hervé Lisoir, eds., 2005, *Participatory Methods Toolkit. A practitioner's manual*, Brussels, viWTA
- Vance, Colin & Ralf Hedel, 2006. On the Link between Urban Form and Automobile Use - Evidence from German Survey Data, *RWI Discussion Papers* 0048, Rheinisch-Westfälisches Institut für Wirtschaftsforschung.