

---

## D.1.4.2

---

# Transnational Economic and Ecological Analysis (with the EEA-Tool) of the Regulations and Financial Instruments in the Context of Biomass Burning in the Alpine Region

---

10<sup>th</sup> March 2020

## Content

---

|   |    |
|---|----|
| 1) Summary.....   | 3  |
| 2) Background, Context and Scope of this report and the related analyses .....                                  | 4  |
| 3) The Economic and Ecological Analysis Tool (EEA-Tool).....  | 6  |
| <b>3.1) The EEA-Tool</b> .....  | 6  |
| <b>3.2) Experiences and Limitations using the EEA-Tool</b> .....  | 7  |
| <b>3.3) User Guideline and Checklist</b> .....  | 8  |
| 4) A Framework on the regulations and financial instruments enhancing biomass burning in the alpine region..... | 9  |
| <b>4.1 Literature review on developing regulations and instruments in the context of biomass burning</b> ....   | 9  |
| <b>4.2 A regulatory and instrumental framework</b> .....  | 9  |
| <b>4.3 A hands-on approach toward designing a new innovative regulation and framework</b> .....                 | 11 |
| 5) Results by Country.....  | 12 |
| <b>5.1) Austria</b> .....   | 12 |
| <b>5.2) France</b> .....  | 15 |
| <b>5.3) Germany</b> .....   | 17 |
| <b>5.4) Italy</b> .....   | 19 |
| <b>5.5) Slovenia</b> .....  | 21 |
| 6) Transnational comparison of the results.....   | 23 |
| <b>6.1) Quantitative results of transnational comparison of the selected regulations</b> .....                  | 23 |
| <b>6.2) Quantitative results of transnational comparison of the selected financial instruments</b> .....        | 24 |
| 7) Appendix.....  | 27 |
| <b>The EEA-Tool – Guidelines to use the tool and the questionnaire (detailed version)</b> .....                 | 27 |
| <b>The EEA-Tool – the questionnaire (detailed version)</b> .....  | 29 |

---

## 1) Summary

---

*“How can we promote the use of cleaner technologies and a sustainable use of chimneys, oven and other private household wood low-technology based heating systems? And how do other countries tackle this challenge?”*

This question is asked by policy makers throughout the entire Alpine Region. Actually there exists no transnational analysis on the efficiency of regulations and financial support instruments in the context of clean biomass burning.

Further on policy makers may ask if there is not a process or approach that could support the systematic development of such regulations and financial instruments.

Taking these points into account we defined in our project plan to develop an ecological and economic efficiency analyses tool (EEA-Tool) for this purpose and use the tool to evaluate the most important actually existing regulations and financial instruments in the alpine region related to the topic.

The EEA-Tool consists of three parts that lead to a quantitative evaluation. The three parts include different questions related to the ecological and economic analyses as well as the “usability” and acceptance by the target group of the instrument or regulation. This quantitative evaluation can be deepened though additional qualitative comments and information related to each instrument and regulation. Further on the parts can receive different weightings according to the needs and focus of the policy makers.

The evaluation was conducted by selected interdisciplinary experts in each country through individual interviews and/or roundtables. In total we analysed around 30 instruments and regulations.

The results are very interesting. On the one hand we were able to identify clusters of best-practice approaches for both, the instruments and regulations itself. One main outcome is that the most sustainable approach includes a harmonized portfolio of “pressure” regulation and incentive-based instruments. Secondly the targeted communication and usability plays a very important role while addressing the private households. We identified in France, Germany and Austria approaches that could play a role model in future development of policies on national level. Italian results were further very interesting because of their regional perspectives and related challenges. In the deep-dive with the experts, we understood well the origins of these challenges and how Italian policy makers are facing successfully these problems.

Using the EEA-Tool for the analyses enabled us to gain experience on the usage of the tool and show also the limitations of the approach. The major limitation we understood was that the quantitative approach itself is only useful together with qualitative explanations. The figures of evaluation themselves cannot explain totally the differences in the efficiency.

This report presents the important results based on the collection of WP 1.3.1 and WP 1.4.1 on financial instruments and regulations. It further provides a framework, methodology and guidance to the use of the EEA-Tool, a morphological box and a framework towards policy development. The latter will be further detailed in WP 5.

---

## 2) Background, Context and Scope of this report and the related analyses

---

### a) Understanding the role of this deliverable in the project

Understanding the regulations and financial instruments across the alpine region to support cleaner biomass burning is one of the main activities within the BB-CLEAN project. It includes work within three different work packages and all partners were involved to conduct a profound analysis of the regulatory landscape and incentive schemes. The base for the evaluation was set by the WP 1.3.1 and WP 1.4.1 where we collected the relevant financial support instruments and regulations in the context of clean biomass burning.

This instruments and regulations were then analysed by experts in the different countries either by individual interviews or in the context of roundtable discussions. For this we developed the EEA-Tool which is described and the results are presented in this report.

The results of this WP 1.4.2 will be used for the development of future efficient instruments and regulations to promote cleaner biomass burning in the Alpine Region. We will promote the tool toward policymakers and use the results to discuss with a selected expert group including all partner countries the outcomes in the online virtual discussion rooms and by online challenges on the crowdsourcing platform [www.innonatives.com](http://www.innonatives.com) (WP 5)

### b) Why do we need an analyses tool?

Having collected the information regarding the different instruments and regulations in WP 1.3.1 and WP 1.4.1 we have defined in the context of our project planning not only to list the approaches but also to analyse the approaches regarding their sustainable design. This means that we wanted to assess the efficiency of the regulations and instruments related to the three aspects of sustainability:

#### 1) Ecological efficiency

The main goal of these instruments and regulations are to promote or regulate cleaner biomass burning in the related regions and countries. Therefore the first part of the evaluation had a detailed look on the effects of cleaner biomass burning. Inter alia we asked the experts that evaluated the instruments and regulations using our EEA-Tool, how many installations have been modernized as a consequence of the regulations and/or tools and how this improved PM emissions in the related region.

#### 2) Economic efficiency

Further we focussed on the economic efficiency of the tool. It is clear that a public instrument should be linked to clear financial KPIs. So we tried e.g. to understand how much of the total financial volume of an instrument has been requested by the target groups, how this was linked to specific communication and other external effects, and how many installations have been modernized. So we tried to link on a qualitative basis the public invest and rate it against the public return in terms of reached households, environmental effects, etc.

#### 3) Usability

---

Finally we wanted to define the “usability” of the instruments and regulations. The “usability” means that the instrument or regulation was/is known by the target group and they were/are able to apply for and receive support. Information, communication, procedure of application, contact and support and further questions were defined to understand the “usability” of the tool.

### **c) What are the expected results**

The tool is on the one hand a quantitative approach to assess the efficiency of the instruments and regulations. For this we have defined a valuation scheme and weighting possibilities between the different sections.

Further on this tool can be included into a semi-structured expert interview to get not only figures but also comments and text-based evaluation and to receive specific information from the expert that could not be reflected by the quantitative evaluation.

Therefore the results are twofold. On the one hand we have comparable figures, valued by the experts. Further on we will take the given comments and text-valuations by the experts to provide a comprehensive analysis.

Based on this we can on the one hand derive best practices related to regulations and instruments. On the other hand the results can be transferred to other countries and used there by national governmental approaches.

Finally this analysis is the basis for a comprehensive framework and the development of future instruments and regulations. This will be part of the forthcoming work packages within this BB-Clean project.

### **d) Who may use the results?**

The EEA-Tool and the results of the analyses can be used by two main target groups.

On the one hand we have governmental bodies who are interested in evaluating their existing approaches and compare the results with the results of our analyses. Further on they may use the best practices to develop or adapt their future approaches to regulate and give incentives to promote cleaner biomass burning installations.

On the other hand we see the scientific community who might be interested to use the framework and semi-structured approach for their research and adapt the EEA-Tool to their specific needs.

### **e) Experts participated in the analyses**

In total we asked almost 20 experts across all partner countries to analyse the instruments and regulations of their related country. We did not ask each of them to do a cross-country evaluation. This could be done in a following project. The experts have various backgrounds (economical, environmental and administrative) – so we tried to get a broad evaluation for each country. They are linked professionally to the topic mostly working in national or regional public environmental organisations and/or institutions supporting cleaner technologies, e.g. consumer consulting institutions.

---

### 3) The Economic and Ecological Analysis Tool (EEA-Tool)

---

#### 3.1) The EEA-Tool

The EEA-tool is a mixed approach to analyse the economic and ecological efficiency of a regulation or financial public instrument and its usability related to biomass burning installations. The EEA-tool tries to value in a quantitative way the efficiency of the governmental approaches. Additionally the valuating expert can add comments and personal valuation in text form.

The EEA-tool exists actually in two versions, a detailed one and a simplified version and consists of three parts related to the three aspects of the analyses. In each part a set of questions was defined to conduct the evaluation in an objective way. In the simplified version we summarized the detailed questions to one main question per part.

The quantitative evaluation uses an even grade rating (from 1 to 6) for each question. By this the expert is forced to value the answer into one direction. In social science comprehensive discussions can be found on the question if an even or uneven grade is more useful. Both have pros and cons.

Further on a weighting logic has been implemented in the tool. By this the expert (or in future the governmental body) can define by its own weighting, which of the three parts of the analyses is the most important, etc.

The weighted values can then be compared for each part of the analyses. Or it is also possible to weight and rank the entire result of the EEA-Tool. This can be done individually. However in the context of our transnational analyses, we defined a fixed weighting for the comparison of the approaches.

Actually the EEA-Tool is used in Microsoft excel. It would be possible in the nearer future to implement the EEA-Tool in an online user friendly software solution for the valuating expert. Actually participation of one member of the project team in the evaluation is necessary to implement and answer all questions.

Conducting the analyses by the expert can be done via three different approaches:

- 1) Digital Transmission of the EEA-Tool and reply by the expert via email
- 2) Semi-structured expert interviews (phone or personal)
- 3) Roundtable meeting with experts to exchange and evaluate together the different instruments

All three approaches have their advantages and limitations and should be selected according to different criteria, e.g. number of instruments and regulations to be evaluated, competencies of the experts, time and logistic reasons, etc.

---

### 3.2) Experiences and Limitations using the EEA-Tool

While using the tool the project partners have gathered profound experiences and identified some limitations that should be tackled in the future. The partners performed the analyses by conducting all three approaches in the exchange with the experts. The main experiences and limitations that came up were:

- 1) The roundtable is a very intensive approach and leads to interesting discussions and exchange far beyond the context of the analyses.
- 2) The organisation of the roundtable is a challenge.
- 3) The semi-structured interviews enabled a deep-dive of the analyses as it is a one-to-one approach, where the project partner / interviewer was able to add further questions and link it to further project topics.
- 4) However it came up, that several experts are necessary to evaluate one single instrument or regulation to analyse all three parts of the efficiency.
- 5) The “email” exchange approach is of course the easiest one to organize.
- 6) However the reply of the experts cannot be evaluated and also lacks some information. Moreover it is not easy to motivate only via email-contact the experts.
- 7) Technically the excel-tool can be further developed e.g. to automatically calculate the results in the case of missing values
- 8) From a content perspective, the detailed version of the EEA-tool produces of course more interesting specific results. However the evaluation via the simplified version already leads to a substantial level of analyses.
- 9) Time is a crucial factor and it was underestimated in this project
- 10) The weighting of the three parts of the analyses is on the one hand important. However it was not easy to define the weights with the experts. Especially in the case of an expert who is only focussing his analyses on one of the parts (as he has only there the necessary knowledge)

### 3.3) User Guideline and Checklist

#### 1) User guideline (evaluation by expert / use of the tool)

In order to use the EEA-Tool in an optimal way we prepared a focused guideline for future use. In general we would advise either the roundtable or semi-structured interview approach:

- a) Preparation of the instruments and regulations  
The approaches to be analysed by the expert should be prepared by a one-pager (or slide) so that every expert is clear about the content and scope of the analysis
- b) Contacting the experts  
An invitation with background of the analyses should be send out at least 3 month before the deadline
- c) Interaction with experts  
The experts should be well informed before an interview or roundtable
- d) For the roundtable or interviews all necessary sheets and information has to be prepared well in advance
- e) The interviewer/moderator of the roundtable has to have a good overview on the approaches to be analysed
- f) Completion of the questionnaire and evaluation should be done by the interviewer/moderator. The expert should focus on the evaluation itself
- g) Depending on the number of instruments please calculate 3-6 month for a profound analyses

#### 2) Checklist

| ITEM   | Done ? |
|--|--------|
| Preparation of the instruments and regulations (one-pager, print, pdf)   |        |
| Decision of the approach (email, semi-structured interview, roundtable)  |        |
| Selection of the experts   |        |
| Contact with briefing of the experts                                     |        |
| Acceptance by the experts  |        |
| Timing and organization of the evaluation                                |        |
| Conducting the analyses in a moderated way                               |        |
| Collecting additional comments and discussion points during the analyses |        |
| Preparation of the results   |        |
| Definition of follow-ups (what to do with the results)                   |        |



---

## 4) A Framework on the regulations and financial instruments enhancing biomass burning in the alpine region

---

### 4.1 Literature review on developing regulations and instruments in the context of biomass burning

As a preparation to this work package and report we also tried to find related articles or research analyses linked to the efficiency of regulations and financial instruments in the context of biomass burning. The research was not successful. Actually we only found very few articles and analyses that focus on this topic and analyses existing regulations and tools, mainly one can name the following two articles:

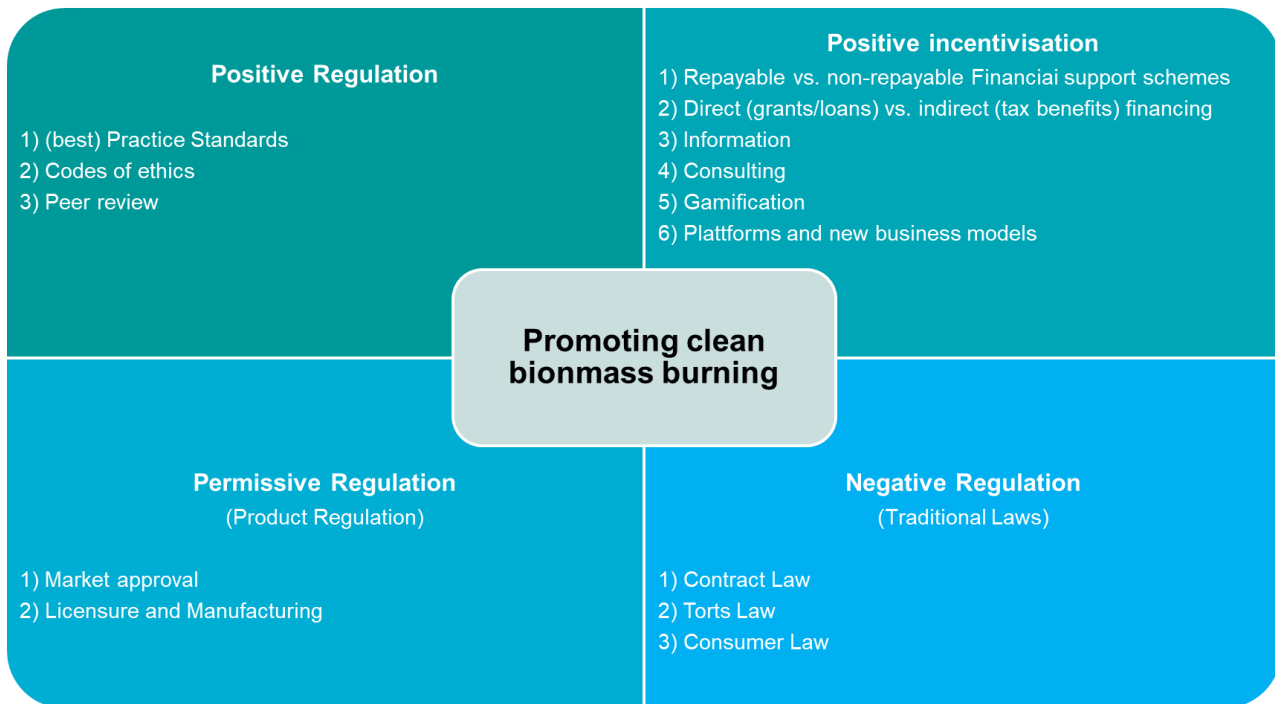
- 1) A critical review of emission standards and regulations regarding biomass combustion in small scale units (<3 MW) by Joey Villeneuve et. Al (Bioresource Technology: Volume 111, May 2012, Pages 1-11)
- 2) Small and Clean Is Beautiful: Exploring the Emissions of Distributed Generation and Pollution Prevention Policies by Nathanael Greene, Roel Hammerschlag (The Electricity Journal: Volume 13, Issue 5, June 2000, Pages 50-60)

We therefore tried to broaden our desktop literature research on renewable energy. Even if we found more articles on this topic the results were not transferable to the very specific context of the financial instruments and regulations.

This gap and lack of evaluation encourages us and shows that an analysis is necessary.

### 4.2 A regulatory and instrumental framework

Having understood that there is no actual research and analysis existing we tried to set up a framework to cluster the instruments and regulations to promote clean biomass burning in the alpine region. For this we propose the following approach:



*General framework promoting clean Biomass Burning*

In order to promote clean biomass burning the above framework consists of four main approaches.

The positive regulation instruments are linked to market mechanisms and cultural/ethical effects in the society. E.g. in Germany the effect of the “neighbour” review (it is that the neighbour is angry about an old chimney/oven installation of you) could be a very important incentive to invest in a modernization.

The largest cluster of approaches uses the idea of positive incentives. Here the repayable and non-repayable support schemes are dominating also our analysis. However we will in the later stages of our project also have a look on the platforms and new business models that could promote cleaner biomass burning. In France we also use gamification approaches to promote awareness and activation of the target group.

Further on the permissive and negative regulations like in Italy, Germany and Austria are very important to promote cleaner biomass burning. Market mechanisms are not always working and the intrinsic motivation to invest into a modern heating solution does therefore not exist.

One main result we understood from the analyses is that it is important to link the different parts of the framework to each other. Only a perfect strategic combination of regulatory instruments and positive incentives is able to really promote a high ecological and economic efficiency.

The above presented general framework can be focused on the analyses of the economical instruments and regulations actually analysed in this project. In total we analysed around 40 economic and financial instruments/actions and 20 regulatory approaches across the five participating countries.

### 4.3 A hands-on approach toward designing a new innovative regulation and framework

In future policy makers should be able to develop in an easier way the most efficient instruments and regulations for their regions/countries to promote cleaner biomass burning in households. To start with this, it is very helpful to understand the total set of possibilities.

The following morphological box shows the bandwidth of the analysed instruments and regulations. Almost all types can be found in each country of course with variations on a detailed level.

| Type of approach                           | Law                   | Regulation             | Financial incentive | Non-Financial Support | Standard setting |  |
|--|-----------------------|------------------------|---------------------|-----------------------|------------------|--|
| Geographical Focus                         | EU                    | National               | Regional            |                       |                  |  |
| Focus of the approach                      | Product               | Process                | Service             | Ecosystem             |                  |  |
| Type of financial support (if applicable)  | Non-repayable (grant) | Repayable (loan)       |                     |                       |                  |  |
| Target Group                               | Business              | Producers              | End-Consumers       |                       |                  |  |
| Level of financial support (if applicable) | Direct                | Indirect (Tax benefit) |                     |                       |                  |  |
| Type of non-financial support              | Information           | consulting             |                     |                       |                  |  |

#### *Morphological box of the analysed instruments and regulations*

The idea of a morphological box is to structure the items by its characteristics. This structure can then be used by all organisations to develop in the future new regulations or support instruments. We set up 6 characteristic items in the first column. Each column shows then different specifications. This morphological box together with the entire collection of approaches and its evaluation here after represents a unique knowledge base for future policy development.

## 5) Results by Country

### 5.1) Austria

Austria has a very centralized approach related to the governmental policies. We analysed 5 approaches, one regulatory and four financial ones:

| Name   | Total Value of the instrument/regulation with individual weighting |
|--|--|
| Emission protection law for domestic boiler installations –Emissionsschutzgesetz für Kesselanlagen | 1,8  |
| Air Immission Control Law – IGL-Luft   | 2,2  |
| Environmental Support Loans – KPC/UFI Umweltförderung  | 1,0  |
| Climate and Energy Model Regions – K. u. E. Modellregion   | 2,5  |
| Out of oil - Support program to invest in non-fossil heating systems – Raus aus Öl                 | 1,0  |

#### Emissionsschutzgesetz für Kesselanlagen

Emissionsschutzgesetz für Kesselanlagen: Emission protection law for boiler plants

The goal of the law is an integrated prevention and reduction of emissions from steam boiler plants.

The emissions into air, water and soil which can be avoided according to the state of the art are avoided, and unavoidable emissions into the air are distributed rapidly and effectively as it is state of the art to keep the immission load on the goods to be protected as low as possible.

The equipment used to limit emissions into the air, the furnaces and burners or combustion chambers and their accessories shall be designed, tested and installed in a way that ensures their reliable functioning. The height of the chimneys shall be determined taking into account the location of the plant as well as the meteorological and topographical conditions in such a way that health and the environment are protected.

The stakeholders evaluated that this law created a clear requirement to avoid or reduce emissions and consequently immissions. The administrative effort is low, the requirements are clear and also measurable, and therefore the rating is very good. There are slight deductions in the evaluation for ecology, as certain pollutants, especially CO<sub>2</sub>, do not play a role, and for economic efficiency, as higher investment costs may be incurred.

#### KPC/UFI (Support Loans)

KOMMUNALKREDIT PUBLIC CONSULTING GMBH – Umweltförderungen (KPC/UFI)

---

On behalf of the Federal Ministry for Sustainability and Tourism, KPC – Kommunalkredit Public Consulting handles grants in the fields of energy, climate and environment. The motto is "Consulting. Funding. Protecting the environment".

KPC sees itself as a specialist for climate and environmental protection projects in the fields of renewable energy, energy efficiency, mobility management, urban water management, protection water management and remediation of contaminated sites.

The experts gave all three points a top rating of 1, with ecological and economic efficiency rated as very goal-oriented. Grants are only awarded to projects that can be shown to achieve a corresponding CO<sub>2</sub> saving. The subsidies serve as an incentive for investors to invest in more ecological alternatives. The subsidies often compensate for cost differences between fossil and renewable systems, or conventional and more energy-efficient alternatives. KPC also scores very well in the area of administration, and the staff members also provide competent support to grant applicants by offering advice on grants and subsidies in the run-up to investments, and also in the processing and accounting of the grants and subsidies.

#### **„Raus aus Öl“ – “Get Out of Oil” (replacement of oil boilers)**

Especially the “Get Out of Oil”-program, as part of the above-mentioned environmental support, is considered a very targeted program. Both private and commercial building owners and/or users receive subsidies for the conversion from fossil to renewable energies. The main purpose of the funding is to replace particularly old, inefficient oil and gas heating systems with modern biomass heating systems, district heating connections or heat pumps. This saves a lot of CO<sub>2</sub>, increases energy efficiency and also improves the regional added value.

#### **“Immissionsschutzgesetz – Luft”-Air Immission Control Law**

The goals of IGL consist of:

1. the permanent protection of human health, animal and plant population, their symbioses, habitats and their interactions as well as cultural and material assets against harmful air pollutants and the protection of humans against air pollutants which pose an unacceptable burden
2. the precautionary reduction of immissions of air pollutants, and
3. the maintenance of the best air quality compatible with sustainable development in areas with better air quality values and the improvement of air quality through appropriate measures in areas with lower air quality values. In order to achieve these objectives, a set of instruments shall be established in particular for the precautionary reduction of immissions of air pollutants, for the reduction of anthropogenic emissions and immissions of air pollutants.

The law primarily regulates immissions as a sum total from heating systems, industrial processes and also traffic in particularly problematic areas with high levels of pollution, especially particulate matter. The law defines the permitted limit values and their monitoring. If limit values are exceeded, the first step is to impose bans. However, there is no direct steering towards other technologies with lower emissions, which makes control difficult. The experts therefore assessed the efficiency as good from an ecological and economic point of view, and satisfactory in terms of administrative efficiency.

#### **KEM – Klima- und Energie Modellregionen / Climate and Energy Model Regions**

<http://www.alpine-space.eu/projects/bb-clean>

This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

---

The Austrian Climate Fund supports the establishment and implementation of so called "Climate and Energy Model Regions" for several years. The objectives are to expand renewable energies such as biomass, photovoltaics, wind or hydropower, to increase energy efficiency and also to integrate the regional economy.

Among other things, the activities of a regional project manager (a driving force) are supported. In the first year, an implementation concept is drawn up, concrete measures are planned and in the following years implementation is also supported financially.

In comparison to direct funding for renewable energies and energy efficiency as in the UFI, the experts rated the KEM administratively with 2, as a separate regional structure is required. Ecology and economy is rated 2-3, as the regional project management is very free in designing the process, and the impact therefore varies in the 95 regions created so far. Not necessarily the most effective measures are implemented, but in some cases they are also marketable.

## 5.2) France

The France analyses focussed on the experiences with selected national tools in the CCPMB-Region. Therefore the valuation is somehow limited. However the qualitative information given additionally to the quantitative results were very specific and we are convinced, that they can be transferred to other regions in France.

| Name  | Total Value of the instrument/regulation with individual weighting |
|---|--|
| Local Wood-Air Fund for the modernization of individual wood heating - Local Arve Valley Fund | 1,5  |
| Regional aid for individual wood-heating ANAH's "Living Better" program set in CCPMB's area   | 2,0  |
| Local Companies-Air Fund for the modernization of craft and industrial sector heating - CCPMB | 2,2  |

The figures for France show very well, how efficient policy approaches should look like. Especially the **“Wood-Air Fund” (FAB)** received a very good valuation. The financial instrument reached to 100% the defined ecological goals. The Fund was linked to specific research programs that measured the effects. Both DECOMBIO and CARVE research programs proved that the FAB has positive ecological impacts. Each appliance replacement results in significant PM emission decrease. The global share of biomass burning in local air PM is decreasing (and the air quality in improving at the same time, though it is also strongly linked to meteorological conditions). When the FAB was set, the defined goal was to replace 3000 old wood-burning appliances in the Arve Valley until 2018 (the goal was completely reached). The FAB is entering its second period with a new goal of 3500 appliances replacement until the end of 2021.

But also from an economical perspective the approach was designed in a smart way. A prior study (named BVA) was led before the launch of the FAB, to identify the target households and to assess the wood-burning systems stock (age and type of appliances). BVA showed that, to achieve a lever effect on households' decision making, the financial support has to be at least 50% of the total expenditure. The FAB 40% support, added to the current French Energy Transition Tax Credit, provides a 50% total financial support to household. A sociological study has been led to evaluate the FAB sociological leverages and impacts (named PRE2A). It has proved that the financial aspect is the main incentive in household's decision making. Further, the FAB leading institution employs a full-time FAB advisor. He checks that the new appliances is set at the right address, that the old appliance is destroyed, that the new appliance meets PM emission standards (Green Flamme label highest grade), that the household hired a "Qualibois" accredited installer, etc. If any of the requirements is not meet, the financial support is not paid to the household

Finally also the administrative procedure was perfectly designed. Applicant households get answer about the granted support within a 3 weeks delay. Direct contact to the FAB advisors and clear information via all communication channels were further an ideal basis for the success of the instrument.

The second program “**Living Better**” (**PIG**) is also an interesting approach, however not as good as the first instrument. The ecological results are however very promising. Taking into account the initial goals, 75% of the target will be reached by the PIG. Considering low-income households and poverty situation, a long term support would be necessary to initiate them to invest in housing with a long term vision. It would also be necessary to expand the target and to support household who realize the renovation themselves (the existing PIG support only households who hire labelled craftsmen). However, the housing heating performance level after renovation stay low, as PIG concerns only very indigent housing (starting with super low performances).

The program invested more per household, still the invest/output ratio is very positive. The average financial support is around 50% of the renovation cost. It can represent up to 100% of the renovation cost for the lowest-incomes households (thanks to the several financial partners contributions: French State, Département de la Haute-Savoie, CCPMB, etc). The financial support level is directly linked to the household income, in order to adapt the support to the households' needs. Thus the lever effect is certain.

Again the administrative procedure was well designed: Applicants get help from the PIG advisors from the first information contact to the end of the renovation. The advisors 'team counts energy performance specialists and social workers, to provide adequate help to the household. The only part they cannot do on behalf of the households is to ask craftsmen for work quotes. For the rest, they help them to fill in the application form, decide the renovation details, follow the craftsmen work, negotiate with the banks, etc. Household can get 50% advance payment and get the total payment 15 days after they provide the proof of works' payment (adapted to the financial precarity of the targets).

Finally we analysed the **companies Air Fund (FAE)**. This programs targeted companies to support them in the modernization of their heating solutions. The ecological and economic efficiency show some negative aspects: There have not been specific measurable goals defined for the FAE (no amount of PM emission reduction, no number of supported companies, etc.). However, the FAE is one of the programs contributing to the Arve Valley Atmosphere Protection Plan, which aims to reduce PM emissions of 34% from 2018 to 2022. But the fund has reached its mid-term and only 15% of the total amount has been granted to local companies. It highlights a matter of communication to reach the targets.

The FAE provides a 30% to 50% support to local enterprises. It is the maximum support share allowed by European regulation about enterprises environmental financial programs. However it does not support innovative solutions, which is one of the major negative aspects of the program, as its not supports directly R&D. However, the FAE prior study covered a "best existing technics" survey and the FAE can support any innovative approach proposed by applicants (if improving air quality).

The given analyses show of course some limitations. We focussed in France on the regional instruments. These were linked to very intensive research activities. Further the target region shows a very strong awareness in the public for the topic compared to other regions in the Alps.



### 5.3) Germany

Germany is like Austria quite centralized in the structure of the regulations and financial support instruments. We analysed the following approaches:

| Name   | Total Value of the instrument/regulation with individual weighting |
|--|--|
| National-Immission-Law / Regulation (Bundes-Immissionsschutzgesetz)  | 2,1  |
| Renewable energy loan: KfW-Erneuerbare Energien im Programmteil 'Premium', Biomasseanlagen (Nr. 271. 281) (Förderkredit und Tilgungszuschuss):   | 2,3  |
| Energy Efficient Construction and Modernization support grant: KfW - Energieeffizient Bauen und Sanieren – Energieeffizient Bauen und Sanieren - Zuschuss Baubegleitung (Nr. 431) (Zuschuss) –     | 1,8  |
| Energy Efficient Modernization of heating systems – additional loan: KfW - Energieeffizient Sanieren Ergänzungskredit, Heizungsanlagen auf Basis erneuerbarer Energien (Nr. 167) (Förderkredit)    | 2,3  |
| Market Incentive Programm Biomass Installations – Grant: BAFA - Marktanreizprogramm Erneuerbare Energien: Biomasseanlagen (Zuschuss und Innovationsförderung)                                      | 1,2  |
| Market Incentive Program Energy Efficiency and Biomass - Grant: BAFA - Anreizprogramm Energieeffizienz (APEE) - Biomasseanlage / Wärmepumpe (Zuschuss)   | 2,3  |
| Energy Consulting - Energieberatung der Verbraucherzentralen   | 2,7  |
| Bavarian Modernisation Programm - Bayerisches Modernisierungsprogramm (BayModR)  | 2,3  |
| Bavarian Support Programm (Loan) for rented apartments Land Bayern - Förderung von Modernisierung von Mietwohnungen sowie von Pflegeplätzen in stationären Altenpflegeeinrichtungen (Förderkredit) | 3,5  |

To summarize the analyses of the experts in Germany we distinguish according to the types of approach.

First of all the general regulation (Bundesimmissionsschutzgesetz) has proven a high ecological impact. The targeted modernization rates of wood-fires ovens in private households were reached. However the invest was also very important and the administrative efficiency showed some negative points. Especially the different phases of the regulation and the definition of emission levels according to the age of the oven were very difficult to understand. Also at the beginning the awareness was very low and people were not motivated as the control and monitoring process was unclear. This had changed also after setting up different related financial instruments.

---

The financial support instruments we analysed in Germany are mainly organised by two organizations and can be clustered in two groups. On the one hand we have refundable loans that are given at interesting rates to the target group via their individual “house bank”. These loan-based approaches were not as efficient as the grant-based approaches. One main reason was the general loan/credit market with its low interest rates and high availability of money to get financing from a bank in the last years. Moreover the entire application process was first not optimized to the target group and the information approach lacked at some points, like the information and support by the house banks. Also incentives to promote the support instruments by third parties were not clear.

The grant based approaches showed a higher ecological and economic efficiency and a wider demand/acceptance by the target groups. As the administrative procedures were more or less the same and the framing conditions needed advise by experts the two organizations optimized during the years the communication, information and application procedures.

On the regional level we had a look on programs in Bavarian state. The regional program did not convince our experts. Especially the administrative procedure showed even more negative points as the application was even more complicated and the framing less clear than for the national programs. We also had a look at one very specific instrument linked to the modernization of flat for rent and buildings for elder people. This very specific instrument showed only little ecological effects and was not taken into account by the target group as foreseen.

Various regional energy agencies and consulting / advisory organisations in the alpine region of Bavaria tried to overcome these challenges in developing support activities and information campaigns. These were an important driver for a higher success of the programs.

Again the evaluation of the approaches shows some limitations, as it is difficult to really link the instruments to the ecological effects. Often the related grants and loans were part of a larger modernization activity of a building. Therefore the analyses of the effects by the modernization of the heating were even more complicate. However the interviewed experts and the related emission controls as well as the reports of the chimney sweeper show that in total the entire approaches show efficient results.

## 5.4) Italy

In Italy we analysed in total 11 instruments, 4 regulatory approaches and 7 financial support instruments

The table below shows the overall results:

| Name   | Total Value of the instrument/<br>regulation with individual weighting |
|--|--|
| Agreement of the Padano Basin – reducing the impact of domestic wood combustion on air quality.  | 3,4  |
| Regional plan for air quality measures – Lombardy Region.  | 3,5  |
| Modification and update of the regulatory provisions on sustainable construction – Trento Province.  | 2,9  |
| Agreement on Interregional measures complementing regional air quality improvement plans to combat PM10 air pollution in Padano Basin – Regions: Piedmont, Lombardy, Veneto, Emilia Romagna. | 3,5  |
| GSE - Incentive Loan for heating replacement investment – Gestore Servizi Energetici.  | 2,4  |
| ENEA – Tax Deduction for energy efficiency investment.   | 2,8  |
| Lombardy Region Environmental energy program POR FESR 2014 – 2020 ASSE IV.   | 2,6  |
| Building refurbishment – Public Authority contributions and loans – Aosta Valley Region.   | 3,6  |
| Regulation of regional sustain policy for agriculture and rural development - Loans – Aosta Valley Region.   | 3,4  |
| Activities relating to environmental measures planning – Veneto Region.  | 3,7  |
| Border Municipalities Fund – Veneto Region.  | 1,5  |

The Italian policy evaluation process has involved many experts, selected among Italy Alps Regions involved in BB-Clean project as partners and observers.

In the expert opinions, the regulatory policies reach a value near to the average in the given scale from 1 to 6 (best to worst), with few exceptions. An initial analysis drives to the following considerations.

The evaluations have been made both individually and by an expert panel in November 2019, during a roundtable in Milan, aimed to benchmark the regional and national policies. It showed some realization difficulties, and sometimes the participants have requested to evaluate only the regulation of the Region they refer to. More, it has been quite difficult to evaluate the acceptancy level of the stakeholders, because of lack of information in this field and criteria inapplicability. However, the average administrative

---

efficiency has reached quite good levels, even if many experts have pointed on the fact that the requirements to obtain grants or loans or subsidies need a professional approach to the administrative process, that doesn't seem "user-friendly" in most cases. This fact also brings a not very high economic impact, because it is difficult to reach as many people as needed in order to replace as many biomass appliances as required. In fact, the analysed policies seem to reach a low ecological impact. The financial instruments often involve the refurbishment of existing buildings or the construction of new ones paying attention to the application of the best available technologies, in order to earn energy and to reduce pollution, in most cases without a specific bias regarding biomass appliances. Unfortunately, to measure directly the impact of domestic biomass substitution and improvement is difficult: by ecological side, due to a large number of factors that influence the air quality; by economical side, because more general parameters are considered for more deep analysis than those related to biomass.

About the regulatory policies, they are conceived to apply the EU regulation in terms of air emission, pollution rates, and biomass appliance thermal efficiency. Every Italian Region in the Alps has replied the same objectives in specific policies, targeted also on biomass domestic appliances. The main weakness is how to control the respect of the mandatory limits, facing a high number of domestic biomass stoves and boilers that are not registered yet by the public authorities.

Another typical characteristic is the content wideness of each law or instrument or scheme, often biased on general issues about pollution and building technical improvement and renewal, without a particular attention to the wood combustion field, except for the emission levels, that are at the same time quite severe to be respected by citizens and quite difficult to be controlled by public authorities. Among the main causes, it can be considered the lack of awareness by citizens about the commitments on domestic wood appliances, like the registration in the thermal plant public register, or like the rules to burn wood properly, paying more attention to the economic issues than to environment ones, facing more and more high prices and tariffs to buy other fuels. We can also observe that the public authorities charged to control the air quality have few possibilities and instruments and economic resources to focus on the wood appliance emissions, facing the high number of existing stoves and boilers. These two factors determine some dissatisfaction among the experts. On the other hand, the experts are conscious that the expected results will be reached and better analysed in a long-term period. In the meanwhile it would be important to improve the controls chain.

Finally, an online platform to go further in the reflection process has been created, including the positive and negative results obtained since now.

## 5.5) Slovenia

Slovenia is actually very active related to the topic. We analysed the following four regulatory approaches:

| Name  | Total Value of the instrument/regulation with individual weighting |
|---|--|
| Enjergy Act   | 1,9  |
| Decree on the emission of substances into the atmosphere from small combustion plants | 2,1  |
| Decree on the inspection, cleaning and measurement of small combustion units          | 2,7  |
| Rules on the requirements for the installation of combustion units                    | 2,2  |

And the following 4 financial / strategic approaches

| Name   | Total Value of the instrument/regulation with individual weighting |
|--|--|
| Energy concept of Slovenia                     | 1,8  |
| Comprehensive National Energy and Climate Plan | 1,9  |
| GHG mitigation action plan                     | 2,0  |
| National Renewable energy action plan (NREAP)  | 1,6  |

The Ministry for environment and spatial planning aims to reduce PM2.5 emissions by 60% by 2030 according to reference year 2005 (in line with the target in the EU Directive). Emissions of these particles have been declining in all sectors in recent years with the exception of household biomass burning. The objective can be achieved only by intensive replacement of existing old biomass boilers and stoves where burning results in very high particulate matter emissions (even by a factor of 100 times higher emissions than in modern efficient low-emission boilers), informs the Ministry.

The Ministry estimates that old inefficient small-scale (households) combustion plants today represent the majority of solid-fuel boilers, with an estimated 150,000 such devices (out of about 200,000 solid-fuel boilers) being used. Therefore, to achieve the target reduction, more than 80% of solid fuel boilers need to be replaced, which means at least about 120,000 replacements within fifteen years. Given that less than 10,000 small solid fuel boilers have been replaced with the help of Eco Fund subsidies in the last 5 years, the replacement will have to be significantly accelerated, warns the Ministry.

---

The expert evaluation focussed on the funds for the replacement of solid fuel boilers. They are available under the financial incentives of the Eco Fund. The tender offers incentives of up to 60 percent of recognized investment costs in the degraded areas due to low air quality (municipalities of Ljubljana, Kranj, Maribor, Novo Mesto, Murska Sobota, Celje, Zagorje ob Savi, Trbovlje and Hrastnik) or up to 50% in other areas. These non-refundable incentives can also be combined with favorable long-term loans to finance the rest of the investment. For socially disadvantaged citizens in degraded areas, however, a 100% subsidy is available for the replacement of solid fuel boilers.

On 19.7.2019 a new Regulation on the emission of substances into the air from small combustion plants was published in Official Gazette of Republic of Slovenia no. 46. The regulation comes into force 30 days after its publication, that is, on 18.8.2019 and from that date only those solid fuel combustion plants may be installed and sold that meet the emission limit values set out in Article 11 of the Regulation. The Regulation also specifies the fuel that can be used in combustion plants, the emissions of substances in flue gases, the emission limit values of substances from combustion plants and measures relating to the reduction of emissions of substances.

For many households, Article 25 of the Regulation is important, requiring the adaptation of a solid fuel combustion plant, defining the conditions for the use of old combustion plants. It is known that outdated technologies are to blame for discharges and for higher air pollution, as proven in December measurements in some Slovenian cities.

In January 2020 the European Regulation on Ecodesign Requirements for Solid Fuel Boilers 2015/1189 / EU came into force and it overruled the Slovenian Regulation. It brings stricter emissions requirements for solid fuel boilers up to 500 kW than those prescribed by the Slovenian regulation.

Out of 160.000 biomass burning plants there is around 90% still inappropriate (old). Moreover the new legislation will in 2022 impose stricter measures also for single room furnaces which is positively evaluated by the experts. However they see a huge challenge in the question, how to speed up end users to change old devices with newer ones. Generally there is very low level of knowledge among end users about new biomass burning devices and their benefits (environment, health, economy). End users usually does not care or are selecting the cheapest devices. There exist financial subventions (by Eko sklad – Eco Fund), but rules are stricter than those of the Directive therefore many of new devices are not eligible for subvention. According to the experts policy has to work on this point. The eligibility is also not clear to sellers/installers/users, therefore users prefer other devices that are not CO<sub>2</sub> neutral (heat pumps). The experts would propose to work on the incentives scheme. In many cases end users also burn inappropriate biomass. Consequences are not only higher emissions, but occasionally also fires or gas poisoning. Knowledge and awareness should be increased among all stakeholders. It would be great to also set up a clearer regulation on the selected biomass according to the experts.

## 6) Transnational comparison of the results

We had the idea to analyse the regulations and financial support schemes to each other. However this analysis is somehow limited as the evaluations are difficult to compare. The experts had different background in the countries. We could not conduct a cross-country evaluation by one expert group. And the details of the evaluation were very different. However some general remarks can be deducted

### 6.1) Quantitative results of transnational comparison of the selected regulations

The following table shows the results for the regulations analysed in the countries. Here only the France national regulations are missing as we did not received an evaluation on them by the France experts, due to the complexity to focus the evaluation on the effects for the alpine region in France.

| Name  | Total Value of the instrument/regulation with individual weighting |
|---|--|
| Emission protection law for domestic boiler installations –Emissionsschutzgesetz für Kesselanlagen (AT)   | 1,8  |
| National-Immission-Law / Regulation (Bundes-Immissionsschutzgesetz) (D)   | 2,1  |
| Agreement of the Padano Basin - reduce the impact of domestic combustion of wood on air quality.(I)   | 3,4  |
| Regional plan for air quality measures - Lombardy Region (I)  | 3,5  |
| Modification and update of the regulatory provisions on sustainable construction - Trento Region (I)  | 2,9  |
| Agreement on Interregional measures complementing regional air quality improvement plans to combat PM10 air pollution in Padano Basin - Veneto Region (I) | 3,5  |
| Enjergy Act (SLO)   | 1,9  |
| Decree on the emission of substances into the atmosphere from small combustion plants (SLO)   | 2,1  |
| Decree on the inspection, cleaning and measurement of small combustion units (SLO)  | 2,7  |
| Rules on the requirements for the installation of combustion units (SLO)  | 2,2  |

The analyses of selected regulatory instruments showed a clear difference between the results for Austria, Germany and Slovenia and those for the Italian approaches. The evaluations for the first three countries are quite similar and almost all regulations have been evaluated with good grades. In Italy the Observers,

engaged in a deep discussion, expressed the evaluation according to an analytical principle, difficult to summarize with a quantitative approach. We discussed with all project partners the reasons for this result and we came to the following two main conclusions.

- 1) On the one hand we see that a clear focus on a specific target is important to set up an efficient regulation linked to biomass burning in private households. The experts in Italy saw this as a main point to optimize the regulations. The experts in the other countries rated this point very positive. The clear target and a focused scope of the regulations lead to a higher efficiency.
- 2) Further on the communication towards the target group is even as critical as the regulation itself. The communication activities in Italy showed several points that had to be optimized. The experts however stated that this point have been tackled and see first positive impacts.
- 3) The third reason can be seen in the regional focus of the regulations. In Italy the regulation were focussing on alpine regions and evaluated against the background of the specific characteristics of the region. The regulations in the other countries were national regulations and therefore an evaluation with focus on the alpine regions in the countries and their specific impacts were not possible. So a general evaluation for an entire country could leverage different regional effects and evaluations. Further on the policy development on a national level is maybe easier as know-how and experiences might be higher in national bodies/institutions than in regional bodies and communication efforts could be designed with more resources.

## 6.2) Quantitative results of transnational comparison of the selected financial instruments

The following table shows the quantitative results for appr. 20 selected financial instruments in the alpine region.

| Name  | Total Value of the instrument/regulation with individual weighting |
|---|--|
| Environmental Support Loans – KPC/UFI Umweltförderung (AT)                                | 1,0  |
| Climate and Energy Model Regions - K. u. E. Modellregion (AT)                             | 2,5  |
| Out of oil - Support programm to invest in non-fossile heating systems – raus aus Öl (AT) | 1,0  |
| GSE - Incentive Loan for heating replacement investment – Gestore Servizi Energetici (I)  | 2,4  |
| ENEA - Tax deduction for energy efficiency investment (I)                                 | 2,8  |
| Lombardy Region Environmental energy program POR FESR 2014 – 2020 ASSE IV (I)             | 2,6  |
| Building refurbishment – Public Authority contributions and loans - Valley d’Aosta (I)    | 3,6  |



|  |     |
|--|-----|
| Regulation of regional sustain policy for agriculture and rural development - Loans - Valley d` Aosta (I)  | 3,4 |
| Activities relating to environmental measures planning - Veneto Region (I)   | 3,7 |
| Border Municipalities Fund - Veneto Region (I)   | 1,5 |
| Renewable Energy loan: KfW-Erneuerbare Energien im Programmteil 'Premium', Biomasseanlagen (Nr. 271. 281) (Förderkredit und Tilgungszuschuss) (D)  | 2,3 |
| Energy Efficient Construction and Modernization support grant: KfW - Energieeffizient Bauen und Sanieren – Energieeffizient Bauen und Sanieren - Zuschuss Baubegleitung (Nr. 431) (Zuschuss) (D) | 1,8 |
| Energy Efficient Modernization of heating systems - additional loan: KfW - Energieeffizient Sanieren Ergänzungskredit, Heizungsanlagen auf Basis erneuerbarer Energien (Nr. 167) (Förderkredit)  | 2,3 |
| Market Incentive Programm Biomass installations - Grant: BAFA - Marktanzreizprogramm Erneuerbare Energien: Biomasseanlagen (Zuschuss und Innovationsförderung) (D)                               | 1,2 |
| Market Incentive Programm Energy Efficiency and Biomass - Grant: BAFA - Anreizprogramm Energieeffizienz (APEE) - Biomasseanlage / Wärmepumpe (Zuschuss) (D)                                      | 2,3 |
| Local Wood-Air Fund for the modernization of individual wood heating - Local Arve Valley Fund (F)  | 1,5 |
| Regional aid for individual wood-heating ANAH's "Living Better" program set in CCPMB's area (F)  | 2,0 |
| Local Companies-Air Fund for the modernization of craft and industrial sector heating - CCPMB (F)  | 2,2 |
| Energy concept of Slovenia (SLO)   | 1,8 |
| Comprehensive National Energy and Climate Plan (SLO)   | 1,9 |
| GHG mitigation action plan (SLO)   | 2,0 |
| National Renewable energy action plan (NREAP) (SLO)  | 1,6 |

Having a general look on the table we assessed the same difference in the results for the countries: Austria, Germany, France and Slovenia compared to Italy.

We came to the conclusion that like for the regulations the Italian results were evaluated more critical because of different laws between the Regions, even if they are part of the same area (the Alpine Space Regions) and therefore showed an impact more analytical than in the other countries. But there are also very positive examples from Italy how to set up an efficient support instrument, like the border municipal fund in the Veneto region, which was evaluated as one of the best instruments in the overall ranking.

In order to compare the results it makes sense to cluster the instruments according to the type of instrument. The main clusters were the grant and loan based support instruments, e.g. the environmental support loans in Austria or the Bafa-programms in Germany. In the actual financial situation of very low interest rates for all type of investments the evaluation of the loan-based instruments were not so good

---

evaluated as the grant based instruments (see the table above) with exception of the Austrian environmental support loans. The general low-interest rate policy is the main reason why the target groups (= the private household) are more interested in the grant based support even if they receive in total a smaller support volume. The ratio of efforts to apply and the financial outcome is favourable for the grant based instruments. Same for tax reduction based instruments they are actually of less interest for the target group.

## CONCLUSION

This result shows that the development of a support instrument is not only depending on the design of the instrument itself but needs also take into account the general economic situation. A detailed target group analyses is therefore mandatory to set up an efficient instrument.

Finally it was interesting to see that the communication and usability of the instrument had a very important impact on the efficiency. Advise and support during the application procedure and even backing through scientific research like in the French focus regions linked with a strong communication and interaction with the target groups are the main factors to design an efficient instrument.

---

## 7) Appendix

---

### The EEA-Tool – Guidelines to use the tool and the questionnaire (detailed version)



#### **Guidelines for the EEA-Tool to assess the value of financial Instruments and Regulations in the context of biomass heating in private Households**

##### **General Remarks:**

- 1) The tool is a quantitative approach to assess the efficiency of an instrument/regulation.
- 2) The tool gives a basic idea of the efficiency. We are not claiming that it will include all aspects. However the tool provides a framework to enable policy makers to understand the efficiency and develop as well as later also monitor the instrument. Some questions have more or less the same content. This is to double check the answers. Further on there is a "weighting" tool. This enables the experts to weight the different efficiency segments according to their opinions. This weighting will change the total efficiency value of the instrument/regulation. The fields D16; D23; D30 and D37 can therefore be filled in with any number between 1 and 2 (e.g. 1,2 or 1,333 etc) and a sum for the four segments weights of 6. So giving the value of "2" doubles the impact of the segment on the entire valuation of the tool. If you don't want to change the weighting, just write "1,5" in all four fields. There is a control-field. All blue-colored fields has to be answered. The grey colored fields can be answered. The lower the total values are, the more efficient is a tool.
- 3) The tool includes four segments linked to the efficiency of the tool.
- 4) The questions can be evaluated by giving a grade between 1 and 6. 1 is the best grade, 6 the worst grade. This means that if the experts totally agree to the question and would answer it positively, she/he will give a good/best grade, and vice et versa.
- 5) If a question isn't applicable to the instrument please do not answer with "6 not agree" as it would have a wrong impact on the results of the quantitative calculation. In case of not applicability please leave this field empty and instead set an "X" in the related field in the column on the right side. In this case also the formulary for the calculation of the entire valuation has to be adapted by the tool developer.
- 6) Answering the tool should need between 15-30 minutes maximum

- 
- 7) The "comment" box can be used to give additional answers by the expert
  - 8) The results of the analyses will be send to the participating experts, for this case a valid email-address has to be given to the partner
  - 9) This analysis can be seen as the beginning of the participation of the expert in the entire project and also the other work packages with external participation: so the crowdsourcing challenges for experts, the assessment and development of policies scenarios, the round tables and workshops planned to develop and exchange on the instruments, tools and business models
  - 10) To value several instruments you may use either the copy function of the "EEA-Tool (Blanc) or just save it as a new file.
  - 11) If you are interested in the results please send an Email to: [marc.tobias@econcept.org](mailto:marc.tobias@econcept.org) , also for any other questions

## The EEA-Tool – the questionnaire (detailed version)

| ID of the Instrument/Regulation  |   |                        |                    |                |          |
|--|---|------------------------|--------------------|----------------|----------|
| Country  |   |                        |                    |                |          |
| Total Value of the instrument/regulation with equal weighting  | 0   |                        |                    |                |          |
| Control-Field Weighting - the Sum of the weighting values must be "6"  | 0   |                        |                    |                |          |
| Total Value of the instrument/regulation with individual weighting   | #DIV/0!   |                        |                    |                |          |
| <b>Ecological Efficiency</b>   | Evaluation from 1 to 6 - 1 means: "totally agree"; 6 means: "not agree" | Average of the segment | Weight per Segment | Not applicable | Comments |
|  |   | 0                      |                    |                |          |
| Has the instrument/regulation a measurable impact on the ecological effects?                                   |   |                        |                    |                |          |
| Are the expected effects in positive relation to the set goals?  |   |                        |                    |                |          |
| Has there been measurable ecological goals defined in the context of the instrument?                           |   |                        |                    |                |          |
| Are the ecological effects monitored in an efficient way?  |   |                        |                    |                |          |
| Taking into account the reached results of the instrument/regulation, was the investment constructive?         |   |                        |                    |                |          |
| <b>Economical Efficiency</b>   | Evaluation from 1 to 6 - 1 means: "totally agree"; 6 means: "not agree" | Average of the segment | Weight per Segment | Not applicable | Comments |
|  |   | 0                      |                    |                |          |
| Is the investment adequate in relation to outcomes (e.g. optimized installations)?                             |   |                        |                    |                |          |
| Does the instrument enable financially the target group to reach the goals set up in the program?              |   |                        |                    |                |          |
| Does the instrument/regulation monitor efficiently the use of the invested money?                              |   |                        |                    |                |          |
| Is the instrument/regulation flexible to enable smaller adaptations to the rules?                              |   |                        |                    |                |          |
| Does the instrument support innovative technical approaches to solve the problem?                              |   |                        |                    |                |          |
| <b>Administrational Efficiency</b>   | Evaluation from 1 to 6 - 1 means: "totally agree"; 6 means: "not agree" | Average of the segment | Weight per Segment | Not applicable | Comments |
|  |   | 0                      |                    |                |          |
| Are there systematic procedures for making the instrument/regulation known and accessible to affected parties? |   |                        |                    |                |          |
| Are enough information provided online/offline to understand the scope of the instrument?                      |   |                        |                    |                |          |
| Is the support granted in an efficient way (e.g. fast payments, documentation, etc.)?                          |   |                        |                    |                |          |
| Is the effort/investment for applying appropriate?   |   |                        |                    |                |          |
| Is a direct contact possibility provided for clarification and questions?                                      |   |                        |                    |                |          |
| <b>Acceptancy Level of the target group stakeholders</b>   | Evaluation from 1 to 6 - 1 means: "totally agree"; 6 means: "not agree" | Average of the segment | Weight per Segment | Not applicable | Comments |
|  |   | 0                      |                    |                |          |
| Is the application to the instrument easy to understand?   |   |                        |                    |                |          |
| Is the application process user-centered?  |   |                        |                    |                |          |
| Has the target group been efficiently reached by the instrument/regulation?                                    |   |                        |                    |                |          |
| Has the issuing institution efficiently managed the communication around the instrument/regulation?            |   |                        |                    |                |          |
| Were participants of the target group invited to the development of the instrument/regulation?                 |   |                        |                    |                |          |

