

# **Potential benefits of linking the Green Investment Scheme of the Kyoto Protocol with institutionalised voluntary markets like the Chicago Climate Exchange**

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## **Abstract**

This paper aims to find the possibility for non-participants in the existing mandatory emissions markets, like universities to market their potential voluntary emission reductions in an existing emission-trading scheme. As the EU ETS does not involve this kind of institutions' voluntary emission reductions, the paper examined the connections of some American Universities and Colleges with the Chicago Climate Exchange. As a solution the paper suggests to build a link between the Chicago Climate Exchange and the Green Investment Scheme of Kyoto, as a possibility arisen for institutes with voluntary emission reductions with potential participation in the Green Investment Scheme.

*Keywords:* Green Investment Scheme, voluntary market, linking GHG markets, CCX.

## **Introduction**

The Szent Istvan University has joined the ACUPCC (American College and University Presidents Climate Commitment) in 2007 to gain experience from its members and find different ways to reduce its GHG emissions. In Hungary the public institutions have to face growing energy prices, and the electricity prices are also expected to rise due to the forthcoming liberalisation of the sector. Therefore, energy efficiency becomes a priority in the stable operation of these public institutions.

## **Materials and methods**

In 2007, the energy saving investments planned in the Szent Istvan University have shown very auspicious savings in energy usage and predicted the change of values towards an effective energy use in the Climate Programme of 2008. The preliminary calculations, which were based on the values of energy savings and CO<sub>2</sub> emission reductions, have shown that the annual costs of energy can be reduced with 35-45% to BAU scenario if the Climate Programme is carried out.

The predicted reduction in costs of energy involves the CO<sub>2</sub> emission reductions sold, which is, for the time being, only a hypothetical revenue. The accounting of emission-reductions of the American College and University President Climate Commitment's members (ACUPCC) to the Chicago Climate Exchange (CCX) is a good sample for using it as calculating the revenues of emission reduction. Our goal was to maximise the revenues from the sale of the emission-reductions measured by the University Climate Council (Appendix I.). This should be realised under the European regulatory conditions. The conclusion of the research has shown that the EU ETS and the Hungarian regulatory conditions allow neither the accounting and selling of voluntarily made emissions reductions nor their free trade on other markets.

As the first step we analysed the protocols of the CCX to be able to realise the potential of emission reductions, and we looked at the EU ETS, to see, if there could be a link to market these emissions reductions. The mechanisms of the CCX are good-shaped and function properly, but the question is whether and how national assets (the AAUs) can be transferred between different emissions trading schemes, so that double-counting and other risks of non-verification could be avoided. Hungary, as an Annex I. country has suffered a loss in emission level during the 90s, and emits now below its Kyoto target, therefore its hot air potential can be marketed for buyer governments, using the so-called Green Investment Scheme (GIS). Since the hot air sale is not ruled by the EU ETS, the GIS would be a realistic option to maintain the voluntary Climate Programme of the University and establish a link to the CCX.

The emissions reductions from hot air are calculated in AAUs that can be defined both by the EU ETS and by the CCX because of their existing rules for linking schemes. The law on Green Investment Scheme, introduced in December 2007, regulates the conditions of the AAUs' sales, and makes it possible that hot air can be accounted internationally through the GIS. The question is what will drive the price of AAUs and what the highest available price is that Hungary has to go for. The regulatory and project maintaining risks do strongly correlate with the price expectation of the AAUs, thus, in the research, the risk analysis of this kind is also included.

## **Results**

After having carried out a benchmarking research on the influencing factors, we have found the following results: the price of AAUs depend mostly on the political risk connected to the regulatory background of the country, which identifies itself as the lobby strength of the traditional energy sector. The other risk was not carrying out the project (reaching no real emissions reductions) and

the third factor was the risk of the market that means price gap in the sale of emissions reductions to different potential markets on diverse prices (Table 1).

Table 1. Different risks of the AAU prices

AAU PRICE	Type of risks	Impacts
	Political risk	+++
	Project risk	++
	Market risk	+

## Conclusions

By analysing the possibility of voluntary emission reductions in Hungary, the paper states that the protocols of the American voluntary schemes are well-established, and can be almost fully harmonised with the accounting of the EU ETS. The CCX offers the opportunity for everyone to sell verified emissions reductions on the exchange, but because of avoiding double-counting and the identification of hot air as a national asset, the voluntary initiated emissions reduction projects can only be realised through the GIS.

Based on the results of the benchmarking research to maximise the revenues of voluntary emissions reductions, the conclusion is that in case of using suitable, verified protocols (e.g: at CCX in the USA), the emission reductions do not have significant price risk on different markets. Although the realisation of the project and the political risk can be high, because of the strong lobby of the energy sector, manipulating the regulatory policy conditions in the post-communist states. Final conclusion could be that without sectoral cooperation – like Technology Platforms work in the EU - we can not proceed the emissions management tasks in the future (Appendix II.).

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## APPENDIX I.

### SZENT ISTVAN UNIVERSITY CLIMATE COUNCIL

The Climate Council was established by the president of the Szent István University, Dr. László Solti, to strengthen the social and scientific acceptance of the climate change programme of the University and to set priorities of its development programmes. The Climate Council reports directly to the president, supervises and sets development concepts of the University's Climate Programme, that aims to maintain energy efficient operation, reach highest CO<sub>2</sub> savings, selling of reduction units and offsetting the remaining energy consumption of the institute. The Council takes decision on what additional GHG saving concepts should be developed and how the expected revenues of the Climate Programme will be redistributed again. The Climate Council has the right to review any institutional development project in the university, that is influencing its CO<sub>2</sub> emissions, its further role is to recommend GHG saving concepts.

**President:** Dr. László Tóth, Doctor of the HAS<sup>1</sup> (GEK<sup>2</sup>) [/toth.laszlo@gek.szie.hu](mailto:toth.laszlo@gek.szie.hu) /

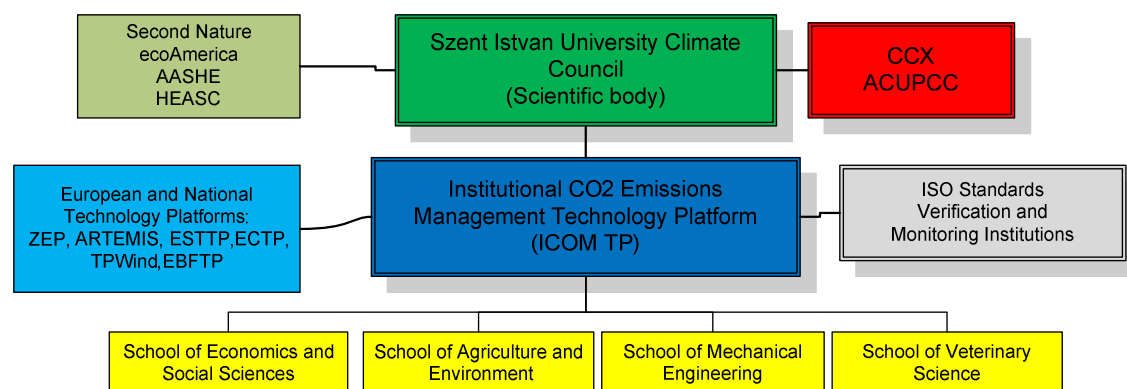
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- Dr. László Hornok Academician (representing the office of the president) [/ hornok@abc.hu](mailto:hornok@abc.hu) /
- Dr. Ferenc Ligetvári Doctor of the HAS (MKK<sup>3</sup>) [/ ligetvari.ferenc@mkk.szie.hu](mailto:ligetvari.ferenc@mkk.szie.hu) /
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- Dr. Béla Nováky CSc. (Member of the IPCC) [/novaky.bela@kti.szie.hu/](mailto:novaky.bela@kti.szie.hu)

#### 2 Tangible Action:

The Climate Council has decided to set priorities on *Green Building Policy* and *Provision of Public Transportation* tangible actions.

#### Organisational Chart of the Climate Council:



<sup>1</sup> Hungarian Academy of Sciences

<sup>2</sup> School of Mechanical Engineering

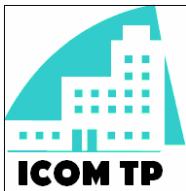
<sup>3</sup> School of Agriculture and Environment

<sup>4</sup> School of Economics and Social Sciences

<sup>5</sup> School of Veterinary Sciences

## APPENDIX II.

### Profile of ICOM Technology Platform

1. Logo	TP name	Contact person
	<b>Institutional CO<sub>2</sub> Emissions Management Technology Platform</b>	Dr. Csaba Fogarassy Program leader

#### 2. Coordinating institution (name, address, contact):

Szent István University Regional Extension Center  
Páter Károly Str. 1, Gödöllő, H-2103  
Telefon/Fax: +36 28 522 022  
E-mail: fogarassy.csaba@gtk.szie.hu

#### 3. Technical objectives:

The strategic goal of the Institutional CO<sub>2</sub> Emissions Management Technology Platform is to design the national and european system of institutional energy and CO<sub>2</sub> emissions savings by further developing the american CO<sub>2</sub> emissions settlement system and using adapted protocols; and further to make verified voluntary CO<sub>2</sub> emissions saving technics, already proved by international emissions trading schemes in the domestic emissions settlement system to be accounted through the Green Investment Scheme mechanism. By designing such a new mechanism, institutional energy savings and connected sales of CO<sub>2</sub>, emissions savings can save up in average 10-40 % of public institutions' energy costs.

#### 4. Relevance to national economy:

By running the program of the Platform, domestic public institutions can make 10-30 billion HUF/a by developing their energy rationalisation programs. The functioning of the Platform can actively help to modernise the existing energy-schemes of public institutions, to lower the costs connected to energy consumption and by involving actively their employees to develop the corporate social responsibility connected to climate change.

#### 5. Sectors within the TP:

- Public institutions: higher education, public education, institutions operated by municipalities, hospitals etc.
- In agricultural production, and in the entire food sector's supply chain: infrastructure of animal husbandry, infrastructure of food processing (architecture of agriculture and food sector).
- Renewable energy industry
- Financing and banking sector.
- Education and Research & Development.

6. Manifestation of results of TP\*:

New, added-value products and services	<b>YES</b>
New business models	<b>YES</b>
New advanced industrial/economic engineering	<b>YES</b>
New emerging science and technologies	<b>YES</b>
Transformation of existing R&D and education infrastructure to support world-class R&D activity	<b>YES</b>

Others: The **sample model of the scheme** can induce similar developments, investments and emissions management activities in other fields of the economy, e.g.: in the infrastructure of the agricultural production based on the successful domestic institutional CO<sub>2</sub> emissions saving technics. The CO<sub>2</sub> emissions saving model can be successfully adapted in the post-socialist, new EU member states to realise Green Investment Scheme programs and implement projects.

7. Research and Development activities:

At national level:  
**To produce institutional CO<sub>2</sub> emissions settlement protocol**, designing financing models in practise for emissions management, CO<sub>2</sub> intensity management, modelling the adapted system of communicational tools connected to CO<sub>2</sub> emissions savings, running fleets with lower emissions level based on the GreenCar concept, the Institutional program can induce investments that reduce emissions levels, plus reshapes knowledge and can be implemented in subjects in the education.

At international level:  
**By using Green Investment Scheme (GIS)**, as a voluntary green investment strategy, individual CO<sub>2</sub> emissions saving initiatives of public institutions can be accounted, be involved in the EU Emissions Trading Scheme. The CO<sub>2</sub> emissions saving model, that can already be accounted in other international schemes, can emerge in the EU ETS.

Have the TP got Strategic Research Plan?\*: **Yes** (the goal is the improvement and implementation of the existing Strategic Research Plan on a Platform level)

8. Stake holders:

- a) Enterprises/companies
  1. Industrial: SONY Hungary Ltd., Vertis Environmental Finance Plc.
  2. Others: Bridge Hungary Plc.
- b) Universities: Szent István University, Corvinus University, University of Debrecen
- c) Professional Organisations (associations, councils): WWF, AEBIOM, REA, REC, DBU, IPCC, MSZTE, ISES

\* Yes/No

- d) Academic research centers: HAS-SIU Research Group of Biomass Economics,
- e) Research and/or innovation centers: FVM MGI, MAÉ, ZEP, ARTEMIS
- f) Policy agencies (national/regional): KVVVM, MEH, GKM, FVM OSZK
- g) Financial institutions: OTP Bank, Raiffeisen Bank, Allianz Hungary
- h) Others: NFÜ, NKTH, KVVVM Natural Inspectorate for Environment, Nature and Water

9. Geographical localisation (map, localisation of participants):

**Hungary**

10. Interaction with other Hungarian and Foreign TPs:

**ZEP** - European Technology Platform - Zero Emission Fossil Fuel Power Plant  
**ARTEMIS** - R&D Technology Platform  
**MAÉ** – Hungarian Building Technology Platform

11. Interactions with national programs/funds:

**KEOP** (Environment and Energy Operational Program 5.1 Improvement of energetic efficiency)  
**EMVA** (European Agricultural and Rural Development Fund ÚMVP (New Hungary Rural Development Program) 1. axle)

12. Funding instruments:

**National Platform Tender** – Developing the strategy and designing the implementation plan.  
**EU FP7** – working out development and research programs, spreading the professional experience and knowledge in the EU.  
**Industrial Financing** – designing technological- and system-adaptations, writing professional information materials, organising conferences, making the experts and extension consulting system to run.