Achieving airport carbon neutrality with Airport Carbon Accreditation:

Developing a data collection system and Stakeholder Partnership Plan for Tallinn Airport's ACA Level 3+ and 4

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Carolina Sinisalu

Tallinn Airport (TLL) and ACA

Where?

- TLL is located in the capital city of Estonia
- 2,96 million passengers in 2022
- Carbon neutrality by 2030 with the aid of ACA

Why?

1. IPCC reports estimated a 40% CO_2 rise over the past 250 years
2. Tallinn Airport wants to take responsibility for the burden on climate

How?

Using Airport Carbon Accreditation standard
Currently accredited at level 3
Carbon neutrality equals level 3+

What is Airport Carbon Accreditation (ACA)?

Independent carbon accreditation program for airports

Monitors and guides airports to reduce carbon emissions.

The only globally approved program for airports
Evaluates and recognises the efforts of airports.

The ACA uses independent auditors to ensure data reliability

AS Tallinn Airport's objective is to become a carbon neutral airport by 2030

Lennujaam

Connection to this project

- Project focuses on the achievement of ACA stakeholder engagement requirements for levels 3+ and 4
- Has to fulfil stakeholder emission data gathering and calculation
- Based on the data analysis of high carbon emissive partners
- Finally develop a stakeholder emission reduction plan

Project goal

Creating a data gathering system for future analysis with simultaneous partner awareness raising and final carbon emission calculation to identify influential partners, which will be the basis for the Stakeholder Partnership Plan required by ACA.

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NEUTRALITY

First phases of the research

ACA requirement analysis phase

Overview of level 1-3 requirements
Overview of level 3+, 4, 4+ requirements
Overview of emission sources
1-5 million passenger airport emission reduction measures

Stakeholder identification and categorization

Identified 58 stakeholders, which were categorised in 14 groups

Power-interest analysis resulted

The most important stakeholders were identified as aviation supporting services followed by cargo services.

Not all of the groups were actively participating and could be placed on the graph, which highlights a need for further research.

Stakeholder engagement

From 20 papers used for the research only five complied with the set criteria.

The five scientific papers highlighted workshops, surveys, interviews and feedback sessions as most effective measures for stakeholder engagement.

Phase	Stakeholder number	% from the total
Opened emails	41	71%
Answered questionnaire	23	40%
Submitted emission data	17	29%

Table 1: Stakeholder engagement results

Two toolboxes

Results:

GHG Protocol was determined as the most accurate due to regular updates

Emission calculations showed that none of the stakeholder groups exceeded the baseline for influential stakeholders

Scope 1			
Type	**Unit**	**Amount**	**Clarification**
Direct emissions from the company			
The amount of thermal energy produced by the partner	kWh		
Number of stationary emergency generators	tk		
Type and quantity of fuel consumed by emergency generators in liters (Specify type)	L		
The number of heat or electricity generating equipment owned by the partner	tk		
Natural gas used for heat energy production	m^3		
Diesel fuel used for heat energy production	L		
Coal used for heat energy production	kg		
Used propane	m^3		
LPG used for energy production	m^3		
Production of renewable energy	kWh		
Machinery usage on Tallinn Airport territory			
Number of vehicles owned by partners by type (diesel, gasoline, CNG, LPG, etc.):			

Scope 2			
Type	**Unit**	**Amount**	**Täpsustus**
Activities related to electricity and heating on the territory of Tallinn Airport			
Purchased thermal energy/steam	kWh		It is not necessary to fill out if provided by TLL
Purchased electricity	kWh		

Scope 3			
Type	**Unit**	**Amount**	**Täpsustus**
Waste management on the territory of Tallinn Airport			
Generation of mixed waste	kg		It is not necessary to fill out if provided by TLL
The emergence of mixed packaging	kg		
Plastic packaging	kg		
Glass packaging	kg		
Metal packaging	kg		
Amount of biowaste	kg		
The emergence of paper and cardboard	kg		
Construction waste	kg		
Combusted mixed municipal waste for energy production	kg		
Mixed municipal waste sent to a landfill	kg		
The amount of biowaste deposited in the landfill	kg		
Amount of recycled waste	kg		

Table2: Emissiongathering toolbox

"Emissions factors" sheet provides an overview of all the emission factors used per source of the data

Guidance

- This sheet is providing overview of emission factors used for calculations. All the values are converted to the same unit in order to be easily comparable.

	ACERT *Emission factor*	IPCC *Emission factor*	Estonian Ministry of the Environment *Emission factor*	Greenhouse Gas Protocol *Emission factor*	EPA *Emission factor*	UK government *Emission factor*
Gasoline	2,3560 CO2e kg/L	2,3300 CO2e kg/L	2,2590 CO2e kg/L	2,3300 CO2e kg/L	2,3500 CO2e kg/L	2,16802 CO2e kg/L
Diesel	2,7050 CO2e kg/L	2,6800 CO2e kg/L	2,6420 CO2e kg/L	2,6800 CO2e kg/L	2,6850 CO2e kg/L	2,54603 CO2e kg/L
CNG	2,9840 CO2e kg/kg	2,7500 CO2e kg/kg	2,7220 CO2e kg/kg	0,0537 CO2e kg/kg	2,3440 CO2e kg/kg	2,533 CO2e kg/kg
Machinery CO2						
CO2 extinguishers	0,0010 CO2e kg/pcs	- CO2e kg/pcs	- CO2e kg/pcs	- CO2e kg/pcs	- CO2e kg/pcs	- CO2e kg/pcs
Emergency services CO2						
Diesel usage em.gen	2,6679 CO2e kg/l	2,7800 CO2e kg/L	2,6190 CO2e kg/L	2,6200 CO2e kg/L	2,6800 CO2e kg/L	CO2e kg/L
Emergency generator CO2						
Natural gas	0,0019 CO2e t/m3	0,0028 CO2e t/m3	0,0019 CO2e t/m3	0,0007 CO2e t/m3	0,0000 CO2e t/m3	0,00202266 CO2e t/m3
Diesel for heating	2,7970 CO2e kg/l	2,6800 CO2e kg/l	2,6190 CO2e kg/L	2,6800 CO2e kg/L	2,6900 CO2e kg/L	2,54603 CO2e kg/L
Self produced heating CO2						
Purchased electricity	0,5420 CO2e kg/kWh	0,4430 CO2e kg/kWh	0,6370 CO2e kg/kWh	0,5320 CO2e kg/kWh	0,5150 CO2e kg/kWh	0,23314 CO2e kg/kWh
Renewable energy	0,0000 CO2e g/kWh	0,0000 CO2e g/kWh	0,0000 CO2e g/kWh	0,0000 CO2e g/kWh	0,0000 CO2e g/kWh	0,000 CO2e g/kWh
Electricity CO2						
Purchased heating kWh	0,0000 CO2e t/kWh	0,0002 CO2e t/kWh	0,0002 CO2e t/kWh	0,0002 CO2e t/kWh	0,0002 CO2e t/kWh	0,00017261 CO2e t/kWh
Heating CO2						

Table3: Emissioncalculationtoolbox

Stakeholder Partnership Plan

The goal of the Stakeholder Partnership Plan creation was to adhere to ACA requirements and provide tangible information on stakeholder emission reduction

Results:

1. Based on the stakeholder analysis phase identified and categorised stakeholder were described
2. Conducted stakeholder engagement measures from 2022-2023 were described
3. 2022 carbon neutrality strategy targets were analysed and the TLL was deemed as ahead of established targets (Figure 4)
4. Analysis of stakeholder emissions was added and the identification on no influential stakeholders was explained as shown in Table 4

Table4: Stakeholderresults

Industry	*tCO2e (Scope 1+2)*
Aviation supporting	897,00
Postal service	218,33
Hospitality/ restaurant	236,88
Car rental	75,07
Security service	54,26
Retail	5,86
Cleaning service	9,94

Table5: Carbonneutrality progress

2022

- Creation of stakeholder's engagement plan
- Creation of the single-use plastic free airport action plan
- Introduction of the main targets for scope 3 to the stakeholders
- Facilitating awareness raising program Green Morning to establish main action points relevant to the partners

2023

- Continuing with awareness raising campaigns Green Morning and Green Forum
- Creating open communication meetings about carbon neutrality and establishment of the transition
- Adding sustainable procurement requirements to legal documents
- Transition to the plastic free airport concept

Conclusions and advice

Conclusion

The project fulfilled the goals set, the two toolboxes were developed in order to gather and calculate data and the Stakeholder Partnership Plan required in the upcoming levels of ACA was completed and accepted by the TLL supervisor.

No influential stakeholders were identified, however, TLL will use above average emission generation approach and engage the emission-intensive partners.

Advice

Identify reasons for low submission rate

- Conduct investigation and assessment of low interest
- Conduct one-on-one interviews with stakeholders
- Gather feedback on time limitations and difficulties

Highlight the importance of data submission

- Communicate benefits of sustainability efforts
- Consider incentives to encourage stakeholder participation

Improve data submission

- Simplify reporting through an online platform integration
- Ensure real-time emission data results for stakeholders

Future of the project

- Conduct follow-up 2022 data gathering after one on one meetings
- Start procurement process for online data gathering tool
- Expand power-interest analysis as the scope of the power was limited
- Research emission reduction measures of airports above 5 million passengers

Thank you for listening !

I would now like to open the floor for any questions or comments you may have regarding the content or topics discussed!

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airport carbon accredited REDUCTION

airport carbon accredited OPTIMISATION

airport carbon accredited NEUTRALITY