

SEEU: A LOW EMISSION UNIVERSITY CAMPUS



2. GHG INVENTORY AND CLIMATE ACTION PLAN

The first step of this innovative project aimed at achieving a Low Emission Campus was the realization of an Energy Analysis and the drawing up of a GHG Inventory (2010), necessary for tailoring the sustainable interventions for the reduction of the energy consumption and GHG emissions. The inventory allowed quantifying where and how many emissions are generated within the Campus boundaries, using an internationally recognized methodology.

The GHG Inventory revealed that in 2009 SEEU Campus emitted approximately 5,100 tCO₂e. This value represents the sum of all the emissions occurring from sources that are completely owned or controlled by the University, all the indirect emissions from purchased electricity as well as the indirect emissions from faculty, students and staff commuting in individually-owned vehicles, air travel for University-related business and landfill emissions caused by the University-generated waste. The chart presents the contribution of each source on the total emissions: the higher amount results from students, faculty and staff commuting, followed by electricity consumption.

Once defined the quantity and sources of the emissions produced by the University activity, the second step of the project was the definition of dedicated mitigation strategies for their abatement, thus to achieve the Campus carbon neutrality. These strategies have been drawn into the dedicated Climate Action Plan (CAP), published for the first time in 2011.

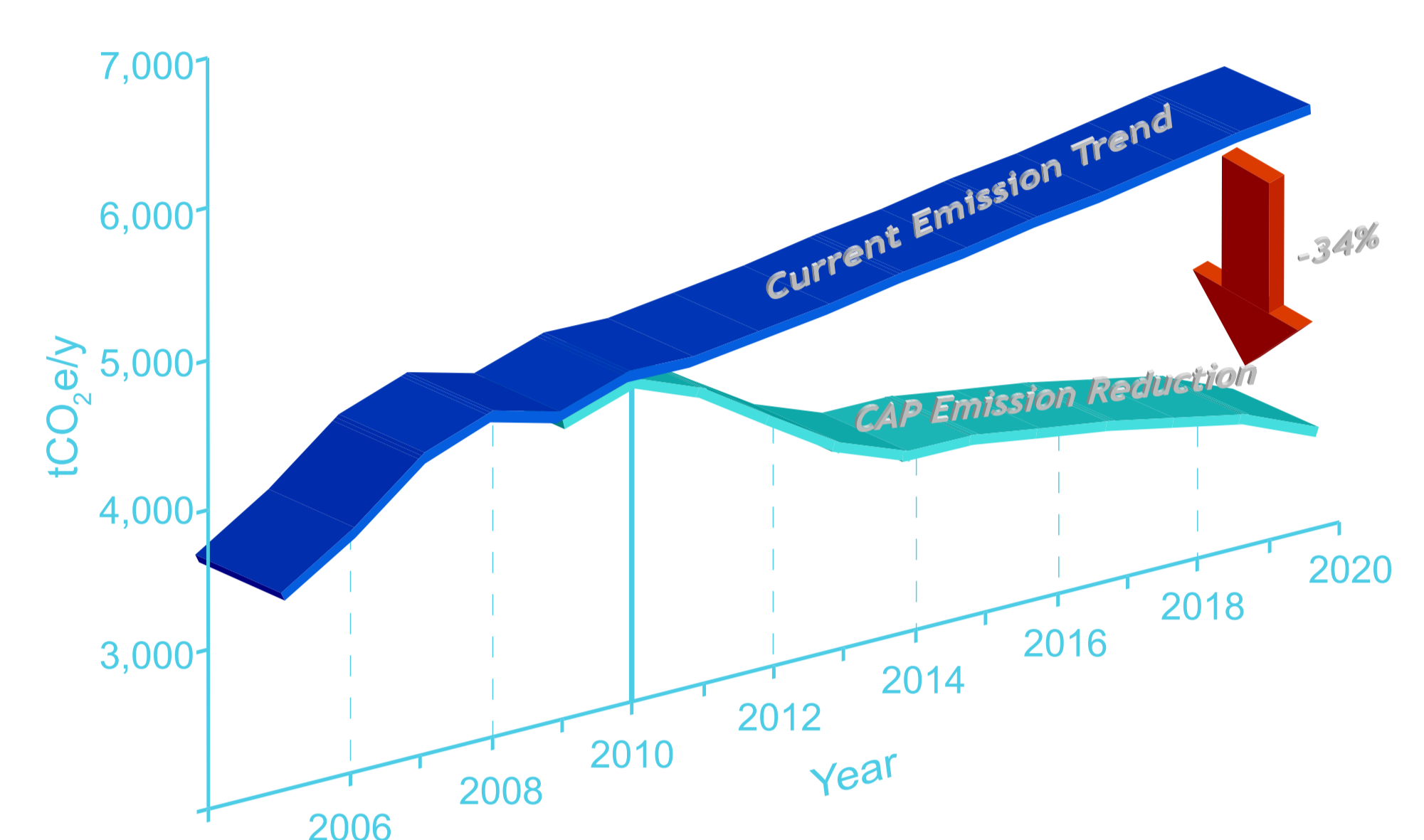
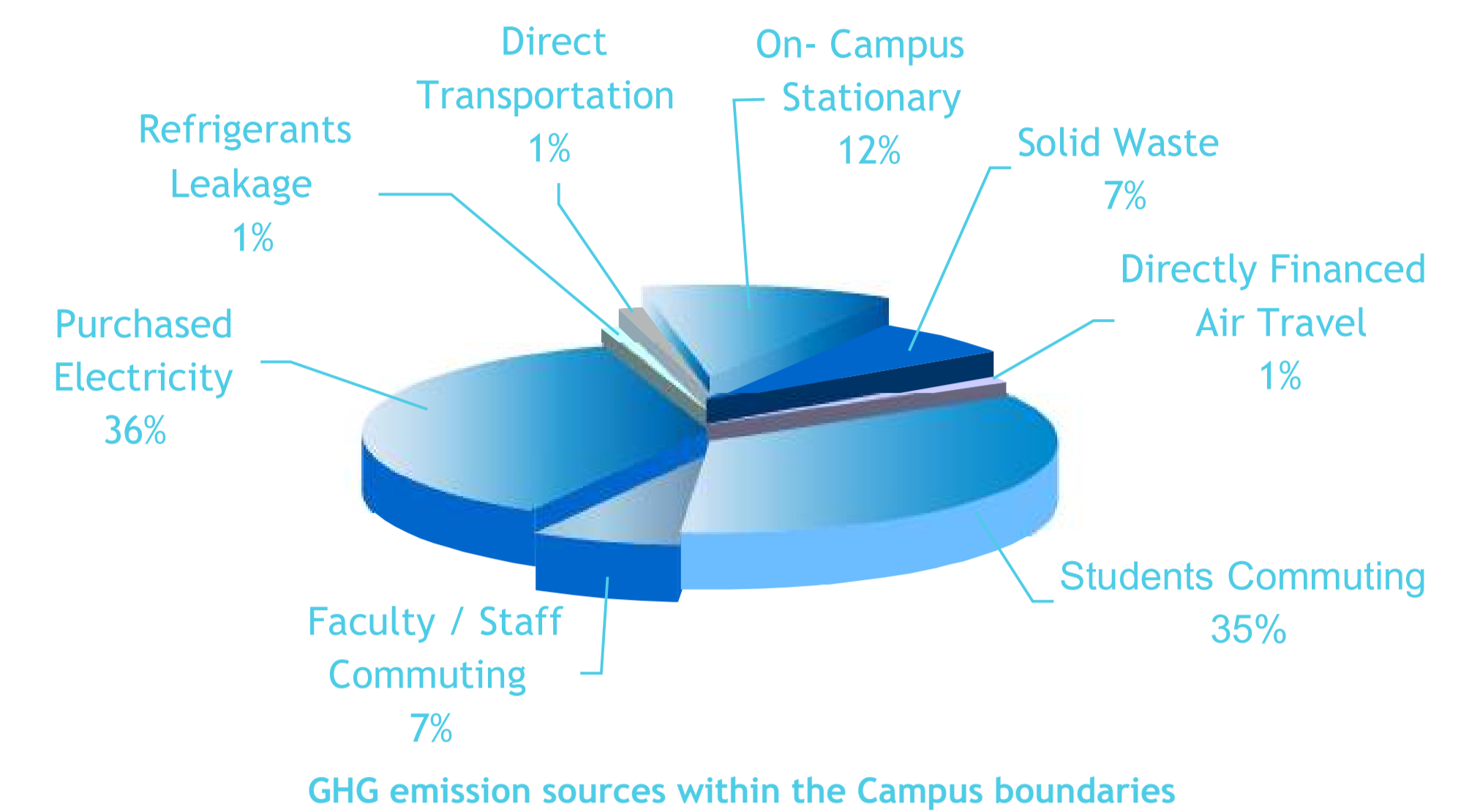
The scope of the CAP is in fact to develop, collect and implement over the short, middle and long term measures to achieve climate neutrality by neutralizing or offsetting the Campus emissions. As society's source for ideas, universities have a crucial role to play in climate mitigation: they can both generate new knowledge, solutions and technologies, and at the same time reduce their own carbon footprint.

The CAP includes two different types of interventions:

- replacement of the existing technologies mainly affording on fossil fuels, with new technologies, more efficient and/or based on the renewable sources;
- implementation of the concept of energy efficiency in the whole process of energy usage with a consequent decrease of the energy consumption. The optimization of energy at SEEU will be focused mainly on a better usage of energetic resources through the consumption management, allowing elimination of energy leftovers.

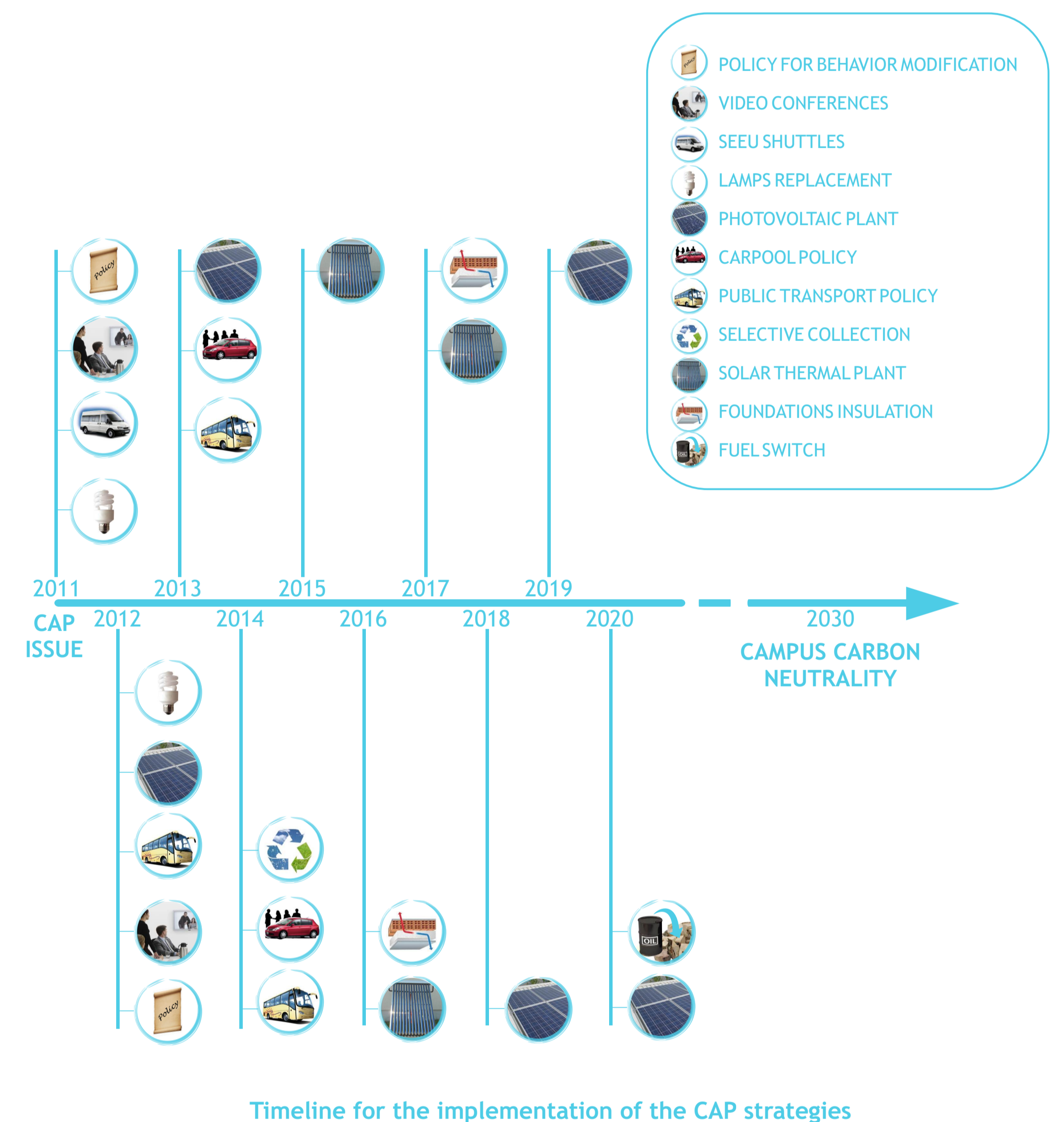
Based on this distinction, the following table represents all the other strategies included in the CAP which, if properly implemented, will allow the Campus to achieve the condition of Zero Emissions.

Great importance within the CAP is given to the development of administrative policies addressed to the Campus community, aimed at making it aware of its role in reducing energy wastes and modifying their energy-consuming habits and behaviors. Educational and social marketing can result in energy-conscious actions (behavior modification and occupation awareness) and modification in the transportation habits (i.e. empowering of carpooling). This means that a strong involvement and commitment is requested to the whole Campus community, partly responsible of the achievement of the goal of carbon neutrality.



GHG Inventory: current Campus emissions		CAP: mitigation strategies proposed	
Source	Contribution to the overall GHG emissions	Strategy	Emission reduction potential
Students, faculty and staff commuting	42%	– Empowerment of carpooling and participation in regional partnerships for the institution of a local transport at municipal level	7.1%
		– Introduction of SEEU shuttles for local and intermunicipal connections	1.5%
Purchased electricity from the national electricity provider	37%	Adoption of ENERGY EFFICIENCY MEASURES:	
		– buildings foundations insulations to reduce the heating dispersions	2.5%
		– lamps replacement all over the Campus with more efficient ones	4.3%
Refrigerants leakage from air conditioners	1%	– adoption of a policy for behavior modification and occupation awareness	0.4%
		Adoption of RENEWABLE ENERGY SYSTEMS:	
		– solar thermal for domestic hot water production in the dormitories	4.3%
		– solar photovoltaic on building roof surfaces, parking lots and fields to produce electricity	10.7%
On Campus stationary sources: centralized heating system fuelled with diesel oil	12%	– geothermal heat pumps for single buildings or for the whole Campus	t.b.d.
		– demonstrative micro wind turbines to produce electricity	t.b.d.
		– in case of construction of new buildings, the passive house system should be followed.	t.b.d.
Solid waste generated by the Campus	7%	Fuel switch: from the current use of diesel to methane, LPG and/or biomass	3.4%
Direct transportation: Campus vehicle fleet emissions (professors and services fleet)	1%	Introduction of selective collection (paper and plastic)	0.1%
Direct financed air travel for business and study trips	< 1%	Replacement of the current fleet with low emissions vehicles (hybrid, electric and smaller vehicles)	t.b.d.
Tot. GHG emissions in 2009 (5,100 tCO ₂ e)	100%	Reduction/avoidance of air travels providing tool to incentivize telecommuting and web conferencing	0.7%
		Total achievable Campus emission reduction	34%

t.b.d. = to be defined, on the basis of the actual entity of the intervention.



Project Developed by

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1. OUR PROJECT

2. GHG INVENTORY AND CLIMATE ACTION PLAN

3. THE SUSTAINABLE ENERGY BUILDING