

# ClimACT – Acting for the transition to a low carbon economy in schools – development of support tools

## WP2 – Development of tools to support the transition to a low-carbon economy in schools

WP definition over the first 6 months  
July – December 2016

### June 2016 – May 2019

June – Decem 2016

E2.1.1, E2.2.1, 2.3.1,  
E2.8.1

Jan 2017 – May 2019

- Requirement and structure definitions of the Operational platform of the decision support tools (DST's); (Edigreen - E2.1.1 September 2016)
- Definition of energy and environmental target indicators performance for specific education sector (KPI); (Edigreen - E2.3.1 November 2016)
- Definition of the requirements and guidelines for the learning activities; (ABAE - E2.8.1 November 2016)
- Preparation of the database to feed with environmental and energy information of buildings being analyzed. (Edigreen - E2.2.1 December 2016)

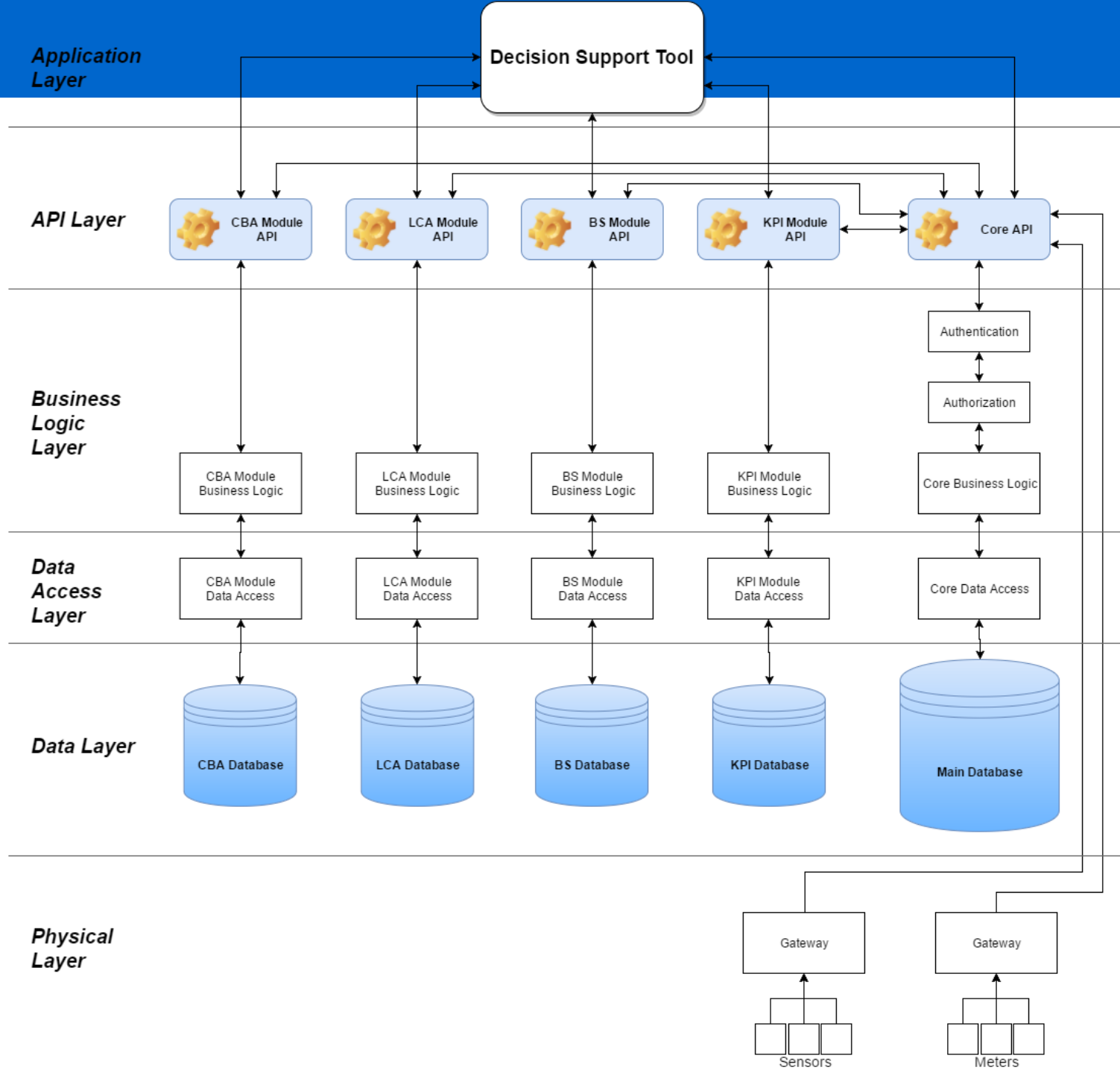
Date	Date	Leader	Indicators
P 2.1 ClimACT decision support tool	April 2019	EDIGREEN	No. of tools – 35
P 2.2 ClimACT benchmarking platform for the educational sector	July 2017	EDIGREEN	No. of views – 1000
P 2.3 Methodology for cost benefit analysis	December 2017	CIEMAT	No. of downloads – 100
P 2.4 Energy performance contracts business models	June 2017	ISQ	No. of downloads – 100
P 2.5 Educational platform for active learning	July 2017	ABAE	No. of activities – 30
P 2.6 Strategy to include contents and ClimACT activities in the national curriculum	July 2017	ABAE	No. of downloads – 500

WP2 leader – ISQ/Edigreen/USE

Tasks	Leaders
2.1 Modular decision support tool	EDIGREEN
2.2 Database Module	EDIGREEN
2.3 KPI Generator Module	EDIGREEN
2.4 Building scenarios module	EDIGREEN
2.5 Life cycle analysis module	CIEMAT
2.6 Benefit assessment module	CIEMAT
2.7 Development of new business models and managements startegies for schools	ISQ
2.8 Educational plataform for active learning	ABAE
2.9 E-Learning module	ABAE
2.10 Classroom trainings module	ABAE
2.11 Serious gamming module	ABAE

Activity	Output	Who	Deadline
Structure Definition of the operational platform of the ClimACT decision support tool.	Activity 2.1 Deliverable E2.1.1	EDIGREEN	30-09-2016
Release ClimACT API v1.0	Activity 2.1	EDIGREEN	30-04-2017
Release ClimACT decision support tool v1.0 for the 35 pilot schools	Activity 2.1 Deliverable E2.1.2	EDIGREEN	31-05-2017
Development of the ClimACT decision support tool manual	Activity 2.1 Deliverable E2.1.3	EDIGREEN	31-05-2017
ClimACT decision support tool calibrated and validated	Product 3.3	All	30-04-2019

Deliverable	Inputs required from partners	Act. coordinator	Dead line
1. Document with the structure of the operational platform (OP) of the ClimACT decision support tool	<ul style="list-style-type: none"> <li>- Layout overview of database (All)</li> <li>- Technical report review (All)</li> </ul>	Edigreen	September 2016
2. ClimACT decision support tool v1.0	<ul style="list-style-type: none"> <li>- E2.2.1 Database Module (Edigreen)</li> <li>- E2.3.2 KPI generator module (Edigreen)</li> <li>- E2.4.1 Building scenario module (Edigreen)</li> <li>- E2.5.1 Life cycle assessment module (CIEMAT)</li> <li>- E2.6.1 Cost benefit assessment module (CIEMAT)</li> </ul>	Edigreen	May 2017
3. Manual for the ClimACT decision support tool utilisation	-	Edigreen	May 2017



Activity	Output	Who	Deadline
Develop the database module	Activity 2.2	EDIGREEN	31-12-2016
Release the database module to be completed by the 35 pilot schools	Activity 2.2 Deliverable E2.2.1	EDIGREEN	31-12-2016
Release the database module to be completed by the stakeholders	Activity 2.2	All	31-12-2017
Release the database module incorporating energy and environment information for 1000 schools	Activity 2.2 Deliverable E2.2.2	EDIGREEN	30-04-2019



Deliverable	Inputs required from partners	Act. coordinator	Dead line
1. Database module	<ul style="list-style-type: none"><li>- Generic Input and output variable and global overview (All)</li><li>- Excel work sheet (ISQ, CIEMAT, ABAE)</li></ul>	Edigreen	December 2016
2. Available, accessible, comparable and interoperable database	<ul style="list-style-type: none"><li>- E2.3.1 Key performance indicators (Edigreen, IST, ISQ, USE, ULR and CIEMAT)</li><li>- E3.2.1 Guidelines for standardized methodologies to conduct the energy and environment audits in schools (IST, ULR and ISQ)</li></ul>	Edigreen	May 2017

Activity	Output	Who	Deadline
Define the KPI indicators to be adopted in the ClimACT decision support tool	Activity 2.3 Deliverable E2.3.1	IST, ISQ, USE, ULR, CIEMAT, Edigreen	30-11-2016
KPI generator module integrated in the ClimACT decision support tool	Activity 2.3 Deliverable E2.3.2	EDIGREEN	28-02-2017

Deliverable	Inputs required from partners	Act. coordinator	Dead line
1. Key performance indicators	- Expertise of partners in audits and energy performance analysis	Edigreen	November 2016
2. KPI generator module	- E2.2.1 Database module (Edigreen) - E3.2.1 Guidelines for standardized methodologies to conduct the energy and environment audits in schools (IST, ULR and ISQ)	Edigreen	February 2017

Activity	Output	Who	Deadline
Task 2.4.1 - Definition of portfolio and building characteristics through initial energy audits/inspections	Activity 2.4	ISQ, EDIGREEN, USE	M4.5
Task 2.4.2 - Definition of best available LCE solutions for being applied at schools	Activity 2.4	IST, ISQ, USE, ULR, EDIGREEN	M5.5
Task 2.4.3 - Definition of energy models for the different building typologies and the different LCE solutions	Activity 2.4	IST, ISQ, USE, ULR, EDIGREEN	M7
Task 2.4.4 - Building scenario module integrated in the ClimACT decision support tool	Activity 2.4 Deliverable E2.4.1	EDIGREEN, USE	31-03-2017

Deliverable	Inputs required from partners	Act. coordinator	Dead line
1. Building scenario module	<ul style="list-style-type: none"><li>- E2.5.1 Life cycle assessment module (CIEMAT and ISQ)</li><li>- E2.6.1 Cost benefit assessment module (CIEMAT)</li><li>- E3.2.1 Guidelines for standardized methodologies to conduct the energy and environment audits in schools (IST, ULR and ISQ)</li><li>- <b>E3.2.2 Report on the energy and environment performance baseline (IST) (deadline project M12!!)</b></li></ul>	Edigreen	March 2017

Activity	Output	Who	Deadline
LCA of 3 schools	Activity 2.5.1	ISQ, CIEMAT	31-03-2017
LCA module	Activity 2.5.1	CIEMAT, ISQ	31-03-2017

- The development of the LCA module will start by performing LCA studies in 3 schools

“Life Cycle Assessment LCA is a tool to assess the potential environmental impacts and resources used throughout a product’s life cycle from raw material acquisition, via production and use phases, to waste management”
- Based on these LCAs a selection of the main and most frequent hotspots and environmental distresses will be performed
- The LCA module will be based in a specific life cycle inventory (database) for schools limited to the most important environmental impacts.
- The LCA module will not be dependent on SimaPro since it will be based in a new life cycle inventory produced during the project.

### Deliverable 2.5.1 Life Cycle Assessment Module

Activity	Output	Who	Deadline
Cost Benefit Assessment module	Activity 2.6.1	CIEMAT	30-04-2017

- In the CBA all costs and benefits to society are accounted in monetary terms including the relevant external costs and benefits.

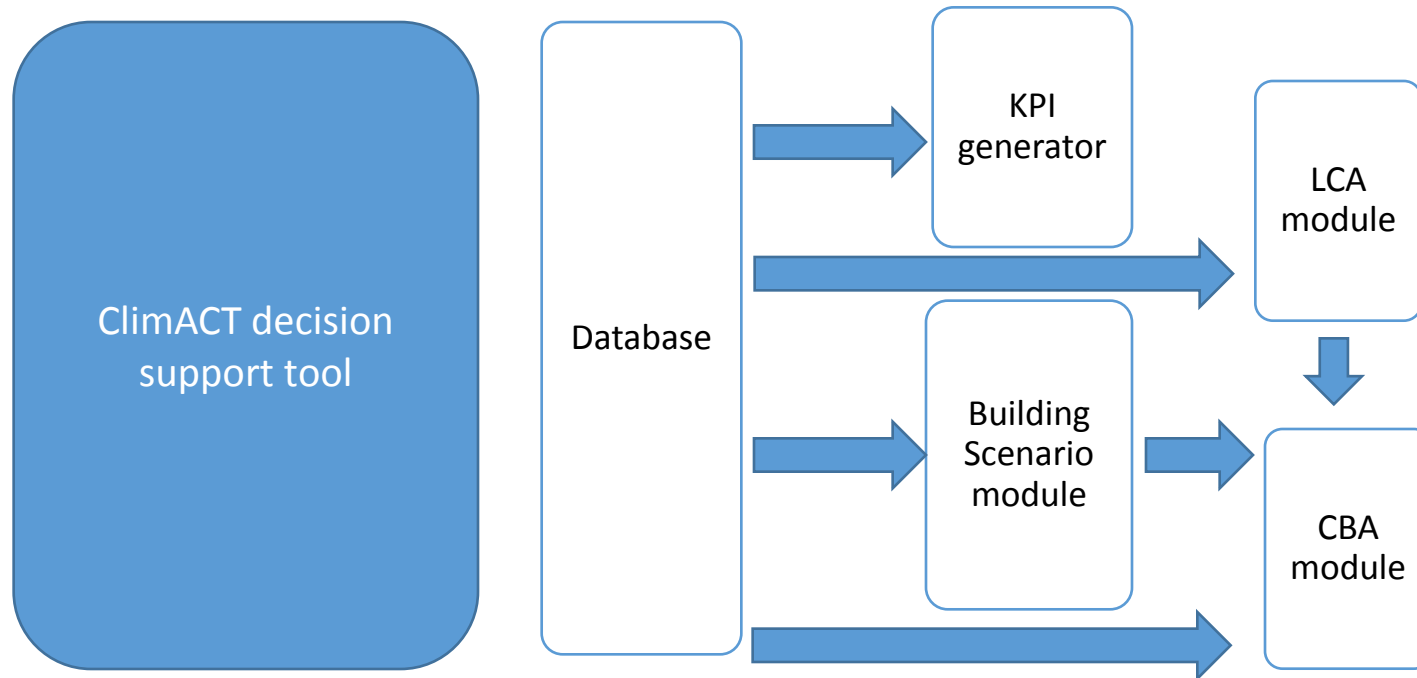
An external cost arises when the social or economic activities of one group have an impact on another group and that impact is not fully compensated. Any consequence in the environment or society that is not accounted for by the producer and it is not incorporated into the price. Can be either negative or positive

- In CBA calculations 3 main elements will be analyzed:
  - 1) cost data calculation (investments, operation and maintenance costs) of each action plan
  - 2) associated social benefits compared to the status quo (e.g. energy savings and environmental benefits)
  - 3) results from the LCA module will be exploited and translated into monetary units

## Deliverable 2.6.1. Cost benefit Assessment Module

## Product 2.3. Methodology for Cost benefit Assessment

It is a document with methodological guidelines that introduces the CBA methodology, its theoretical background, its advantages, limitations and applicability to this work.



- There are many interactions between the different modules
- We have to agree in the format of the tool



## **Objectives:**

- Develop innovative energy performance contract (EPC) business models and energy management strategies for schools based on smart energy management that will consider significant energy performance improvements without diminishing occupants' comfort and health in the indoor environment.

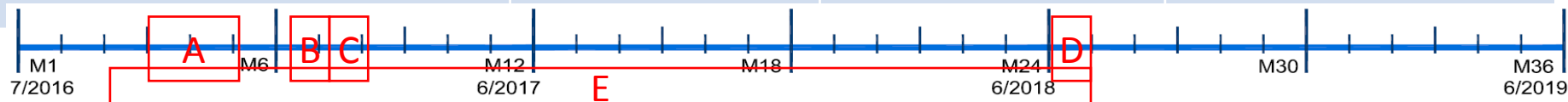
Action	Output	Who	Deadline
State-of-the Art of the existing EPC business models and generation of ideas for innovations	Activity 2.7	ISQ	31-12-2016
Development of new business models and managements strategies for schools	Activity 2.7	ISQ	30-06-2017
ClimACT Resource Matching Platform online	Product 1.11 Deliverable 1.5.1	ISQ	30-06-2017
Easy guide on EPC business models	Deliverable 2.7.1	ISQ	30-06-2017
Document with Recommendations for Governments for the Adoption of EPC by the Scholar Sector	Deliverable 2.7.2	ISQ	30-06-2017
Energy Performance Contracts business models	Product 2.4	ISQ	31-12-2017
Definition of targets and development of action plans	Activity 3.3	USE	31-12-2017
Implementation of the LCE methodology in 35 schools	Product 3.1	USE	31-03-2019
ClimACT tools validated	Product 3.3	USE	30-04-2019

## TASK 2.8 Development of the ClimACT Educational Platform for Active Learning

August

Activity	Output	Who	Deadline
Definition of key requirements from education-related stakeholders regarding pedagogical and deployment aspects to ensure effective introduction of LCE theme into the curricula	Activity 2.8	ABAE	31-1-2017
Guidelines to ensure the compliance of the gaming activities to pedagogical approaches	Activity 2.8	ABAE	31-01-2017

Activity	Output	Who	Deadline
A -Assessment of the training needs, skills and knowledge in sustainable development, of teachers involved, considering the different levels of education and training areas	Activity 2.9	ABAE and UniGib	30-11-2016
B- Segmentation of e-learning activities throughout the 2 school years	Activity 2.9	ABAE	31-01-2017
C- Accreditation of the teachers training	Activity 2.9	ABAE	31-01-2017
D- Evaluation of the e-learning process according to the accreditation requirements	Activity 2.9	ABAE	31-07-2018
E-Interaction with the teachers to sustain attention and promote learning	Activity 2.9	ABAE	31-07-2018



Activity	Output	Who	Deadline
Development of teaching materials for teachers (handbook, presentations, online/audio/visual materials)	Activity 2.10	ABAE	30-11-2016
Development of learning materials for students based on Question&Answer learning approach , exercises, audiovisual material and proposals for projects and practical activities	Activity 2.10	ABAE	31-01-2017

Activity	Output	Who	Deadline
Development of gamification strategies including collaboration and competition activities and rewards to celebrate the achievement of targets.	Activity 2.11	ABAE and VLR	31-05-2017
Development of electronic serious games supported by an user friendly and appealing digital technology (applications for smart phone and computer)	Activity 2.11	ABAE and VLR	31-05-2017
Document describing the missions, procedures and rules of the physical games	Activity 2.11	ABAE and VLR	31-05-2017