



WP7- Evaluation

Evaluation & Pilots

Brescia, October 1st 2014



Developing assessment strategy and research questions



Quantitative analysis

Cost-Benefits approach

Inputs from Pilots (mapping and further steps)

Other inputs

Economic appraisal
(economic, environmental, reliability, security, etc.)

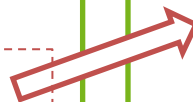
Qualitative impact analysis

KPI based (multicriteria analysis tbd)

Involvement of stakeholders (decision makers, experts, partners)

Evaluation workshop

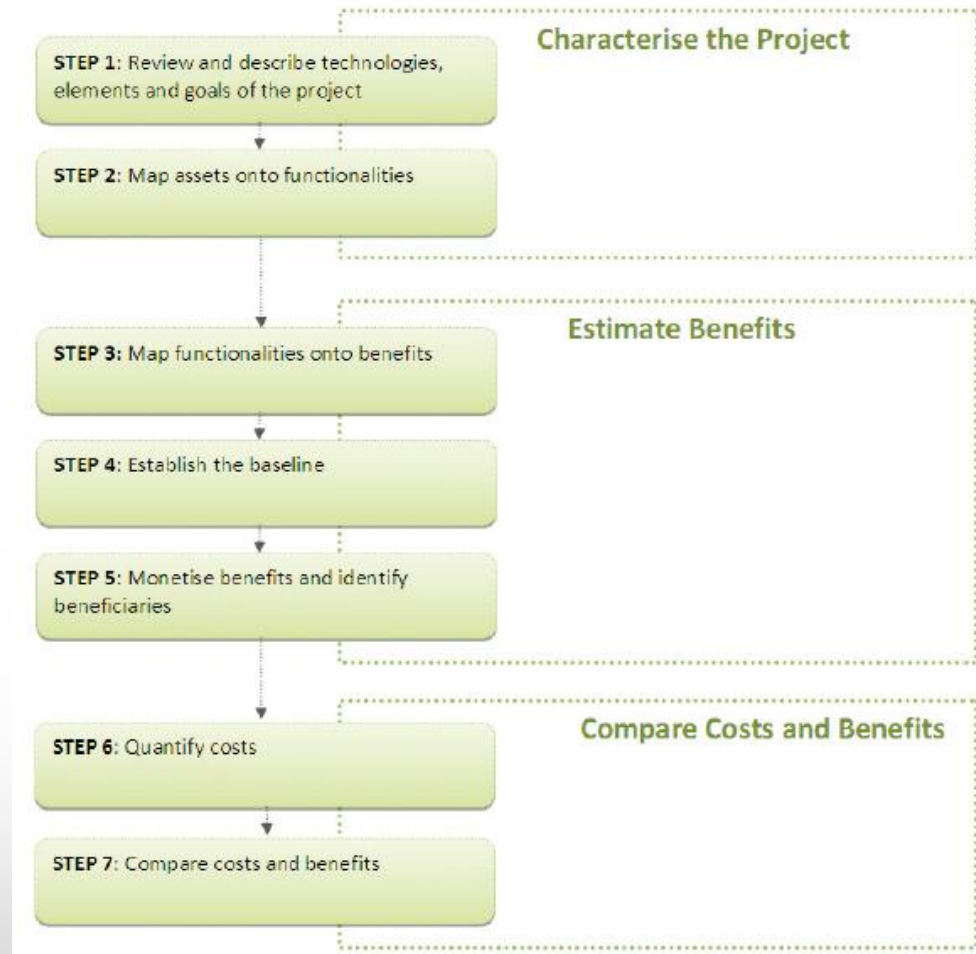
Non-monetary appraisal
(social, acceptance, environmental, safety, security, etc.)



Developing assessment strategy and research questions (quantitative)

Reference model: Electrical Power Research Institute EPRI 2010

- ✓ Cost Benefit Analysis methodology
- ✓ 7 steps from characterization of pilot activities to estimation
- ✓ Sensitivity analysis on pilot activities
- ✓ Base for evaluation of the STORM concept



STEP 1: Review and describe technologies, elements and goals

Information needed on projects

- ✓ Scale of the project (area, consumers served, energy consumption per year at baseline)
- ✓ Technologies involved (assets)
 - Storage system infrastructure
 - Grid infrastructure
 - Metering
 - Information systems
 - ...
- ✓ Local characteristics of the grid
- ✓ Relevant stakeholders
- ✓ Project's objective (and expected socio-economic impact)
- ✓ Regulatory context and impact on the pilot project



STEP 2-3: Assets, Functionalities, Benefits

Assets



Functionalities



Benefits

ALP STORE WP7 - CBA mapping

		A1	A2	A3
Functionalities/Assets		Stationary energy storage system	BEV	FCEV
F1	Energy Regulation (Power Shift, etc)			
F2	Power regulation (Peak shaving, etc)			
F3	Uninterruptible (UPS)			
F4	Monitoring and power flows and			

ALP STORE WP7 - CBA mapping

		F1	F2	F3
Benefits/Functionalities		Energy Regulation (Power Shift, etc)	Power regulation (Peak shaving, etc)	Uninterruptible Power Supply (UPS)
B1	Optimised Generator Operation			
B2	Reduced generation capacity investments			
B3	Reduced congestion costs			
B4	Deferred transmission/distribution			

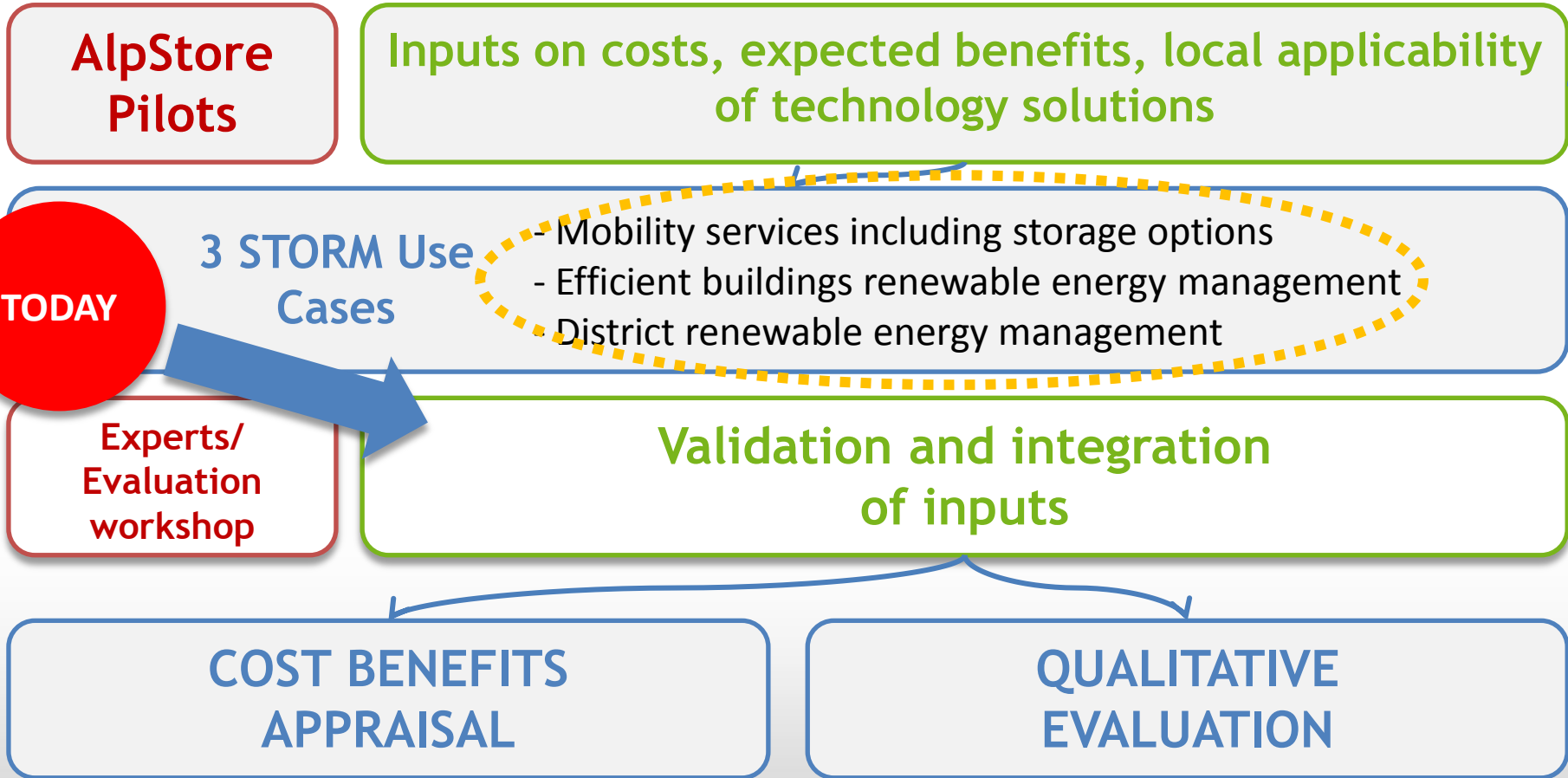
Estimation of benefits



Inputs received by pilot activities on different tested technologies:

- **Costs** of assets and operational
- Expected **benefits**, internal and external
- **Local applicability** and regional potential of technology solutions

Our framework



Our pilots



- **Alsace Auto 2.0:** Freshmile, Strasbourg, France
- **Gas and Power - together for a cleaner future:** Technical University of Belfort, France
- **EVective storage:** Vorarlberger Kraftwerke AG, Bregenz, Austria
- **Implementation of a local biogas grid:** European Centre for renewable energy (EEE Ltd.), Austria
- **REDOX flow batteries to balance PV:** RDA- BSC Kranj, University Ljubljana, Slovenia
- **PV-Storeplus E-Bike:** BAUM/AÜEW Oberallgäu, Germany
- **Stationary plus mobile battery system in energy plus homes:** AÜEW/EZA, Oberallgäu, Germany
- **Biogas and District Heating:** Rothmoser, FFE, BAUM, Grafing bei München, Germany

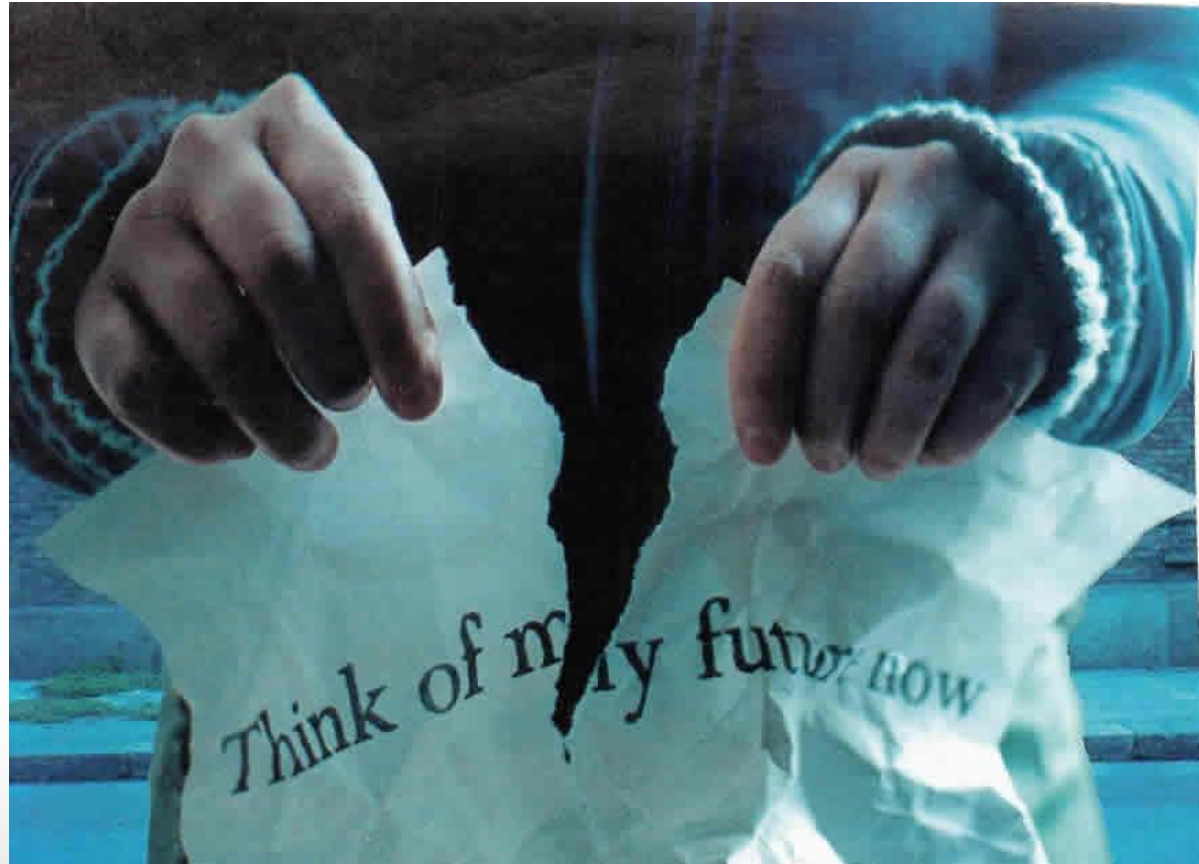
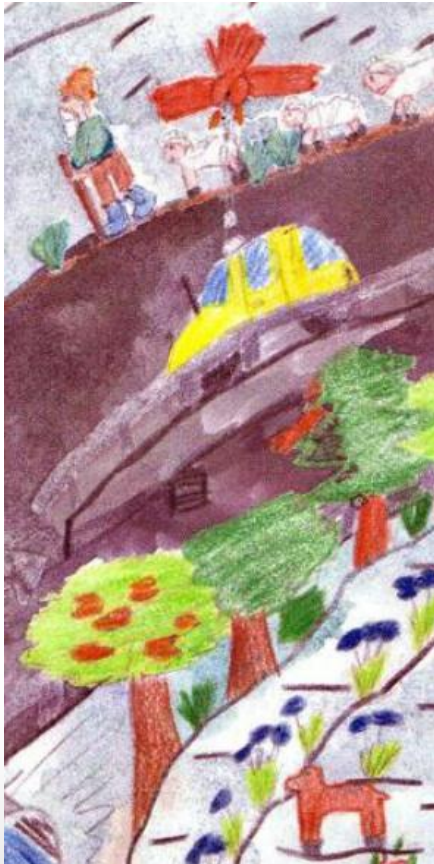
Our pilots - COMING SOON



- **Energy in Motion**: storage and charging networks for the province of Brescia - **ALOT**
- **Technocity Area Manager**: Science campus as self-contained energy cell using local generation, mobile batteries and suited software - **EurolImpresa**
- **rete è luce**: electric mobility and renewable energy sources in Mantua - **AGIRE**
- **Smart Node**: stationary storage with PV and EV - **Autonomous Region of Valle d'Aosta**

THANK YOU FOR YOUR ATTENTION! (again)

ALP STORE



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