OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 2

Project index number and acronym	CE1125 - CIRCE2020
Lead partner	ARPA VENETO - Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto
Output number and title	Output O.T3.1 - Pilot actions to test the business model and quality standards verifications
Investment number and title (if applicable)	Not applicable
Responsible partner (PP name and number)	2 – ETRA spa
Project website	https://www.interreg-central.eu/Content.Node/CIRCE2020.html
Delivery date	12.2019

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature and demonstration character

(Max. 3.000 characters)

The plant under focus is located in Bassano del Grappa (BdG). It treats mainly kitchen waste (biodegradable) collected in the nearby municipalities (~ 35.100 t in 2017) and a minor part of green waste (~ 3.700 t in 2017) as structuring material. The treatment consists in an anaerobic degradation followed by a composting phase.

Biogas production from anaerobic digester in 2017 was 4.367.378 m3. Note that the qualitative and quantitative variability of inflow waste, amplified by environmental factors (e.g. weather, temperature) and managerial choices strongly affects the quantity and quality of biogas. For instance, additional maintenance works have further decreased the biogas production in 2017 (4.919.000 m3 in 2016; 5.044.000 m3 in 2018).

The biogas is actually exploited as energy source fuelling cogeneration motors. The new solution conceives the installation of a further treatment process able to recover methane from the biogas, rejecting the carbon dioxide as off-gas. The bio-methane is injected into the national grid, after a compression step. The new scenario is completed by a cogeneration unit that provides energy and heat to the whole system, burning natural gas from the grid. The available upgrading technologies are mature, but the their application in the waste management sector is relatively new due to economic and legal constraints. With public incentives and a recent Regional act, the business related to this biofuel has been strongly supported, opening new interesting perspectives.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

(Max. 500 characters)
Country (NUTS 0) : IT
Region (NUTS 2) : *ITH3, Veneto*
Sub-region (NUTS 3) : *ITH36, Padova*

Investment costs (EUR), if applicable

Not applicable

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

(Max. 2.000 characters)
The solution potentially offers interesting perspectives:

- Improving the recovery of biogas according to European waste hierarchy (from energy recovery to material recovery)
- Contribution to the national biofuel target; the Ministerial act DM 10th October 2014 identifies in 10% of biofuel into the market the minimum national target over the total fuel in 2020. In addition, at least 1,6% should be covered by advanced biofuels.
- Incentive system will lead to economic profitability
- Improving the environmental profile of the collection service company (methane releases less emission than diesel during the combustion phase) will reduce the local pollution

Sustainability of the pilot action results and transferability to other territories and stakeholders.

(Max. 2.000 characters)
The pilot results, even if based on design and estimation, are positive both for the company and the local environment. A consistent starting investiment ensures an increasing in terms of energy efficiency (new treatments, new cogeneration motor, new upgrading process) and an upgrading along the waste management hierarchy (from energy recovery to material recovery). Public funds guarantee the economic viability of the new scenario. One of the main opportunities arising from this business model is the substitution of the company fleet from diesel to methane. The utilisation of generated Biomethane to fuel the vehicles represents a perfet closure of the loop because collection trucks transport the biowaste to the treatment plant.

Lessons learned and added value of transnational cooperation of the pilot action implementation (including investment, if applicable)

(Max. 1000 characters)
Public funds can strongly push the market towards circular and sustainable business models. LCA results depend on the regional context, above all if they depend on terms affecting the energetic balance of the system. The upgrading of biogas to Biomethane is an advanced technology and the Italian experience can be used as a best practice, but local and specific evaluations are required before the transferability of the project in other areas.

Contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-descrimination

(Max. 2.000 characters)
The are specific standards and legislation acts that define the quality of the Biomethane to allow its injection in public network. A monitoring station is installed before the final step. In the case of not compliant parameters the generated Biomethane is discarded and burned (emitted CO2 is from biogenic sources).
The new scenario represents an improvement in terms of environmental performances respect to the biogas-to-energy scenario. Even better results will be achieved once the vehicles substitution will be completed.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links
If applicable, additional documentation, pictures or images to be provided as annex

(Max. 1.000 characters)
Deliverable D.T3.2.1 - Closing the loop & activation of secondary raw material markets in the pilot areas
Deliverable D.T3.2.2 - Pilot actions infographics (one per each waste/flow)
Deliverable D.T3.2.3 - Report on implementation of the pilot actions
Deliverable D.T3.2.4 - Checkup service for verification of quality standards of by-products
Deliverable D.T3.2.5 - Performance Monitoring of pilot actions environmental & economic impact

Factsheet in wikiweb: https://www.circe2020-wiki.eu/biogas-exploitation
Local newspaper: https://mattinopadova.gelocal.it/padova/cronaca/2020/01/09/news/la-multiutility-punta-sui-mezzi-a-metano-e-sulla-produzione-di-biogas-dai-rifiuti-1.38308774