Life cycle assessment of biomethane use in Argentina

Betzabet Morero, Eduardo Groppelli, Enrique A. Campanella

PII: S0960-8524(15)00097-8
DOI: http://dx.doi.org/10.1016/j.biortech.2015.01.077
Reference: BITE 14509

To appear in: *Bioresource Technology*

Received Date: 20 November 2014
Revised Date: 15 January 2015
Accepted Date: 19 January 2015

Please cite this article as: Morero, B., Groppelli, E., Campanella, E.A., Life cycle assessment of biomethane use in Argentina, *Bioresource Technology* (2015), doi: http://dx.doi.org/10.1016/j.biortech.2015.01.077

Life cycle assessment of biomethane use in Argentina

Betzabet Morero[a*1], Eduardo Groppelli[b], Enrique A. Campanella[a,c]

[a)] Instituto de Desarrollo Tecnológico para la Industria Química (INTEC), Universidad Nacional del Litoral-CONICET, Güemes 3450, (3000) Santa Fe, Argentina. Tel.: (054) 0342 4559174 ext 2165; fax: (054) 0342 4559174 ext 2006. E-mail: bmorero@intec.unl.edu.ar

[b)] Grupo de Energía No Convencional, Facultad de Ingeniería Química (FIQ), Universidad Nacional del Litoral, Santiago del Estero 2829, Santa Fe, Argentina, 3000
E-mail: groppellieduardo@gmail.com

[c)] Facultad de Ingeniería y Ciencias Hídricas, Universidad Nacional del Litoral, Ruta Nacional Nº 168 Km 472.4, (3000) Santa Fe, Argentina.
Email: tquique@santafe-conicet.gov.ar

Abstract

Renewable substitutes for natural gas, such as biogas, require adequate treatment to remove impurities. This paper presents the life cycle and environmental impact of upgrading biogas using absorption-desorption process with three different solvents: water, diglycolamine and polyethylene glycol dimethyl ether. The results showed that water produces a minor impact in most of the considered categories, and an economic analysis showed that water is the most feasible solvent for obtaining the lowest payback period. This analysis includes three different sources for biogas production and two end

[*1] Corresponding Author