Study on effective use of incidental gas from hot spring waters: a case study in Toyotomi town, Hokkaido

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In order to examine the value of utilizing hot spring incident gas, we evaluated the environmental performance and economic efficiency by comparing cases of utilizing the incidental gas and liquefied petroleum gas (LPG) as fuels. Our results show that when co-generation system (CGS) is newly introduced in the hot spring incident gas emission area, both greenhouse gas (GHG) emissions and costs can be significantly reduced. In addition, it was found that by switching fuels from LPG to the hot spring incident gas in LPG use areas, both GHG emissions and costs could be significantly reduced. Furthermore, it was found that GHG emissions and costs were significantly reduced even when CGS was introduced to the maximum extent. In order to promote the effective use of the hot spring incident gas in the future, in addition to relaxing laws and regulations, it is important to promote government-led initiatives and to add added value such as self-sustaining energy for disasters.

Keywords: Incidental gas from hot spring waters, Ambience, Economical efficiency, Life cycle assessment

