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Potential of renewable methane by anaerobic digestion from existing plant stock – an economic reflection of an Austrian region

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#### ACCEPTED MANUSCRIPT

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### 2 existing plant stock – an economic reflection of an Austrian region

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#### 10 Abstract

11 The importance of natural gas as a primary energy source is expected to increase significantly in Europe. However, a rising consumption of natural gas leads to increased import dependency, while 12 13 greenhouse gas emissions are only reduced by a fraction. Renewable methane, as could be produced by biogas and sewage treatment plants, offers an interesting substitute for natural gas. This article 14 assesses the potentially available amount of methane from the existing plant stock within an 15 16 Austrian region. It further analyses the production costs of existing biogas and sewage treatment 17 plants according to type of upgrading and injection. The results show average production costs of 18 115.6 € MWh<sup>-1</sup> (biogas plants), 150.4 € MWh<sup>-1</sup> (sewage treatment plants) and 105.4 € MWh<sup>-1</sup> 19 (collective plant systems). Despite the higher production costs when compared to natural gas, 20 expanding the domestic production capacity of renewable gas can be advantageous. Due to the 21 regional increase in value-added, revenues resulting from the production of methane provide

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