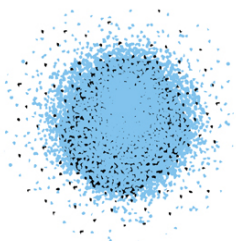


Switzerland Country Report

Cork / Ireland - September 2011



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Traitement et valorisation de
déchets et
d'effluents organiques

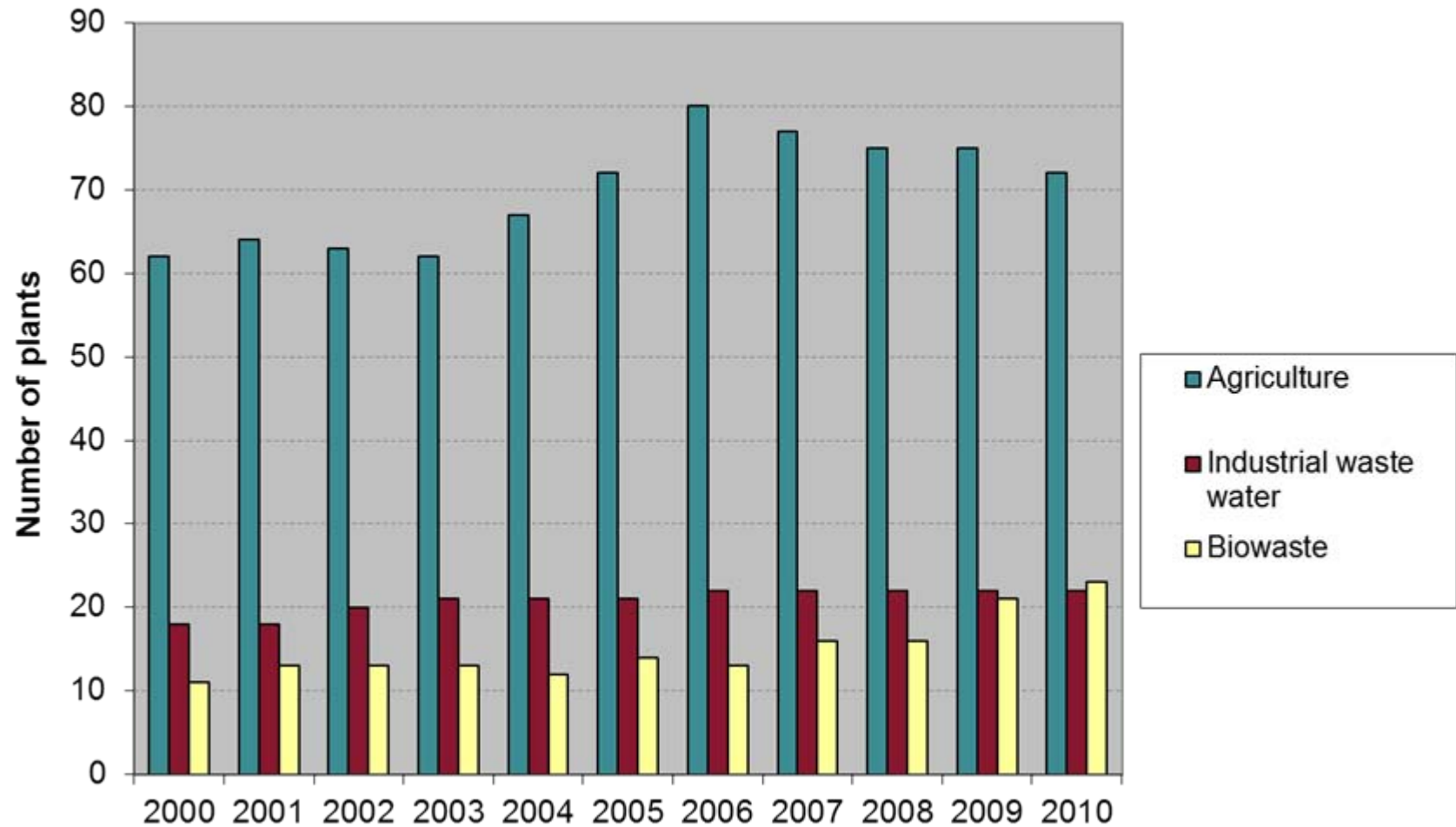
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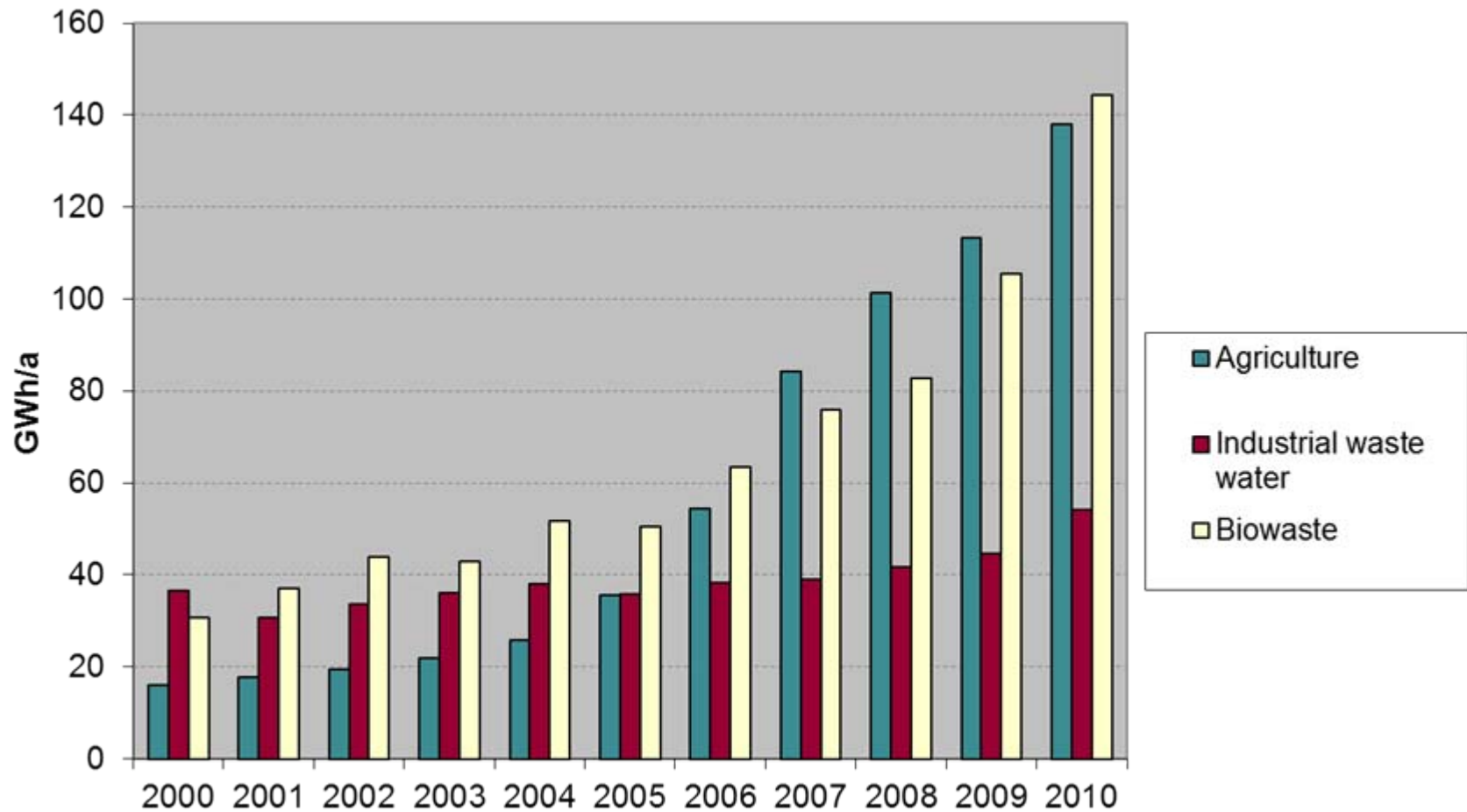
Biogas Plant Inventory

Development of installations



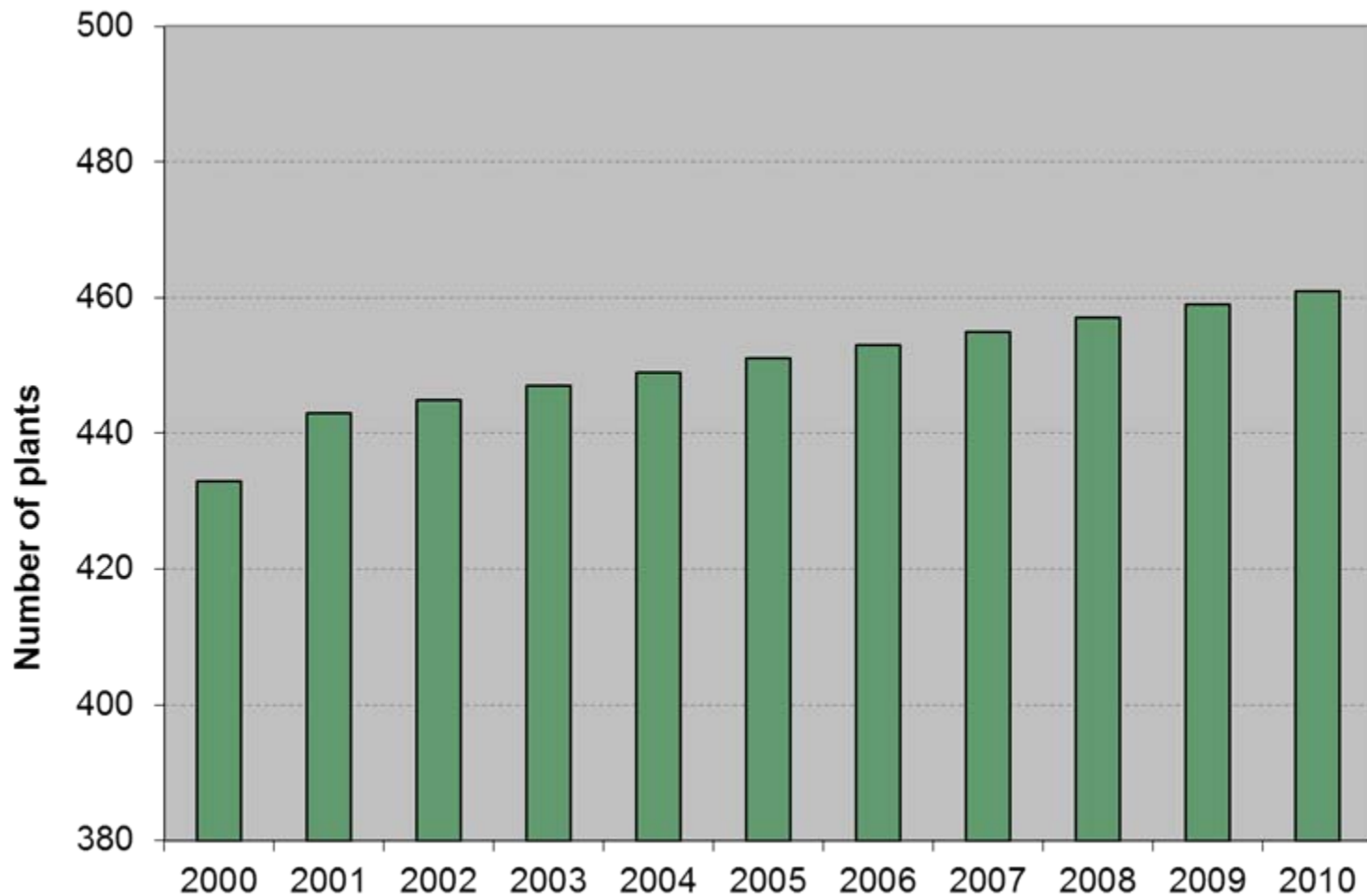
Biogas Plant Inventory

Gross gas production



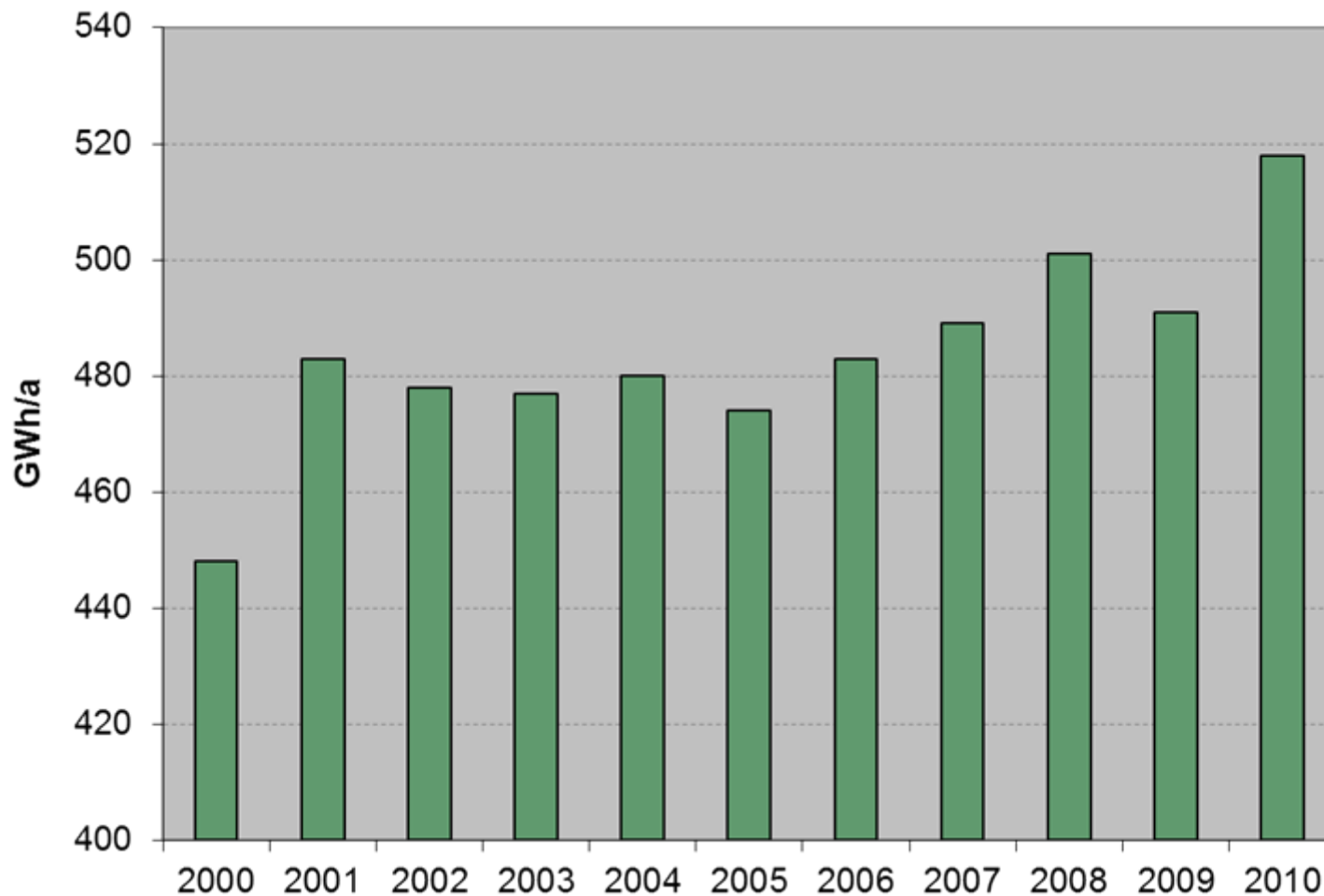
Biogas Plant Inventory

Waste Water Treatment Plants (WWTP) – development of installations



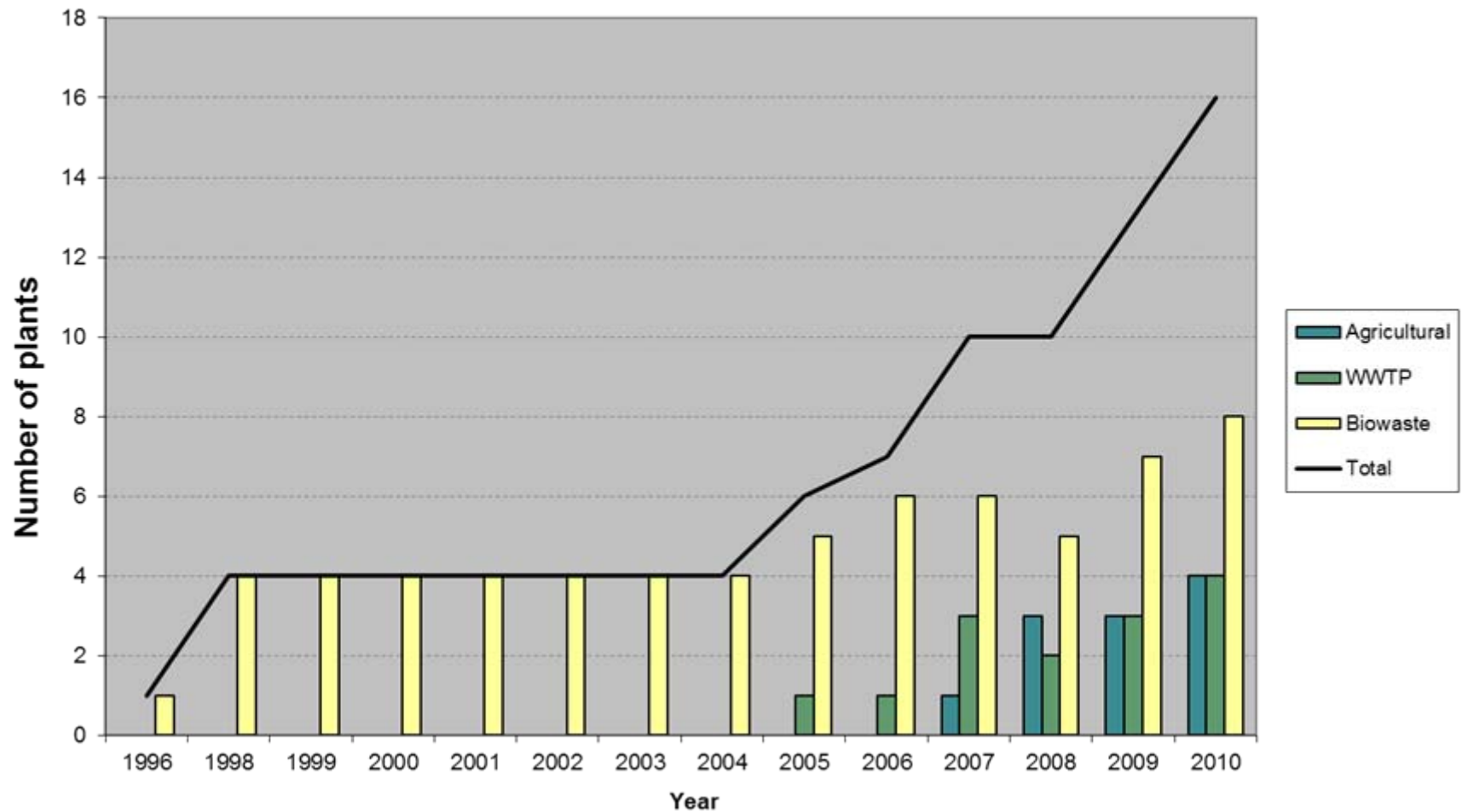
Biogas Plant Inventory

Waste Water Treatment Plants – gross gas production



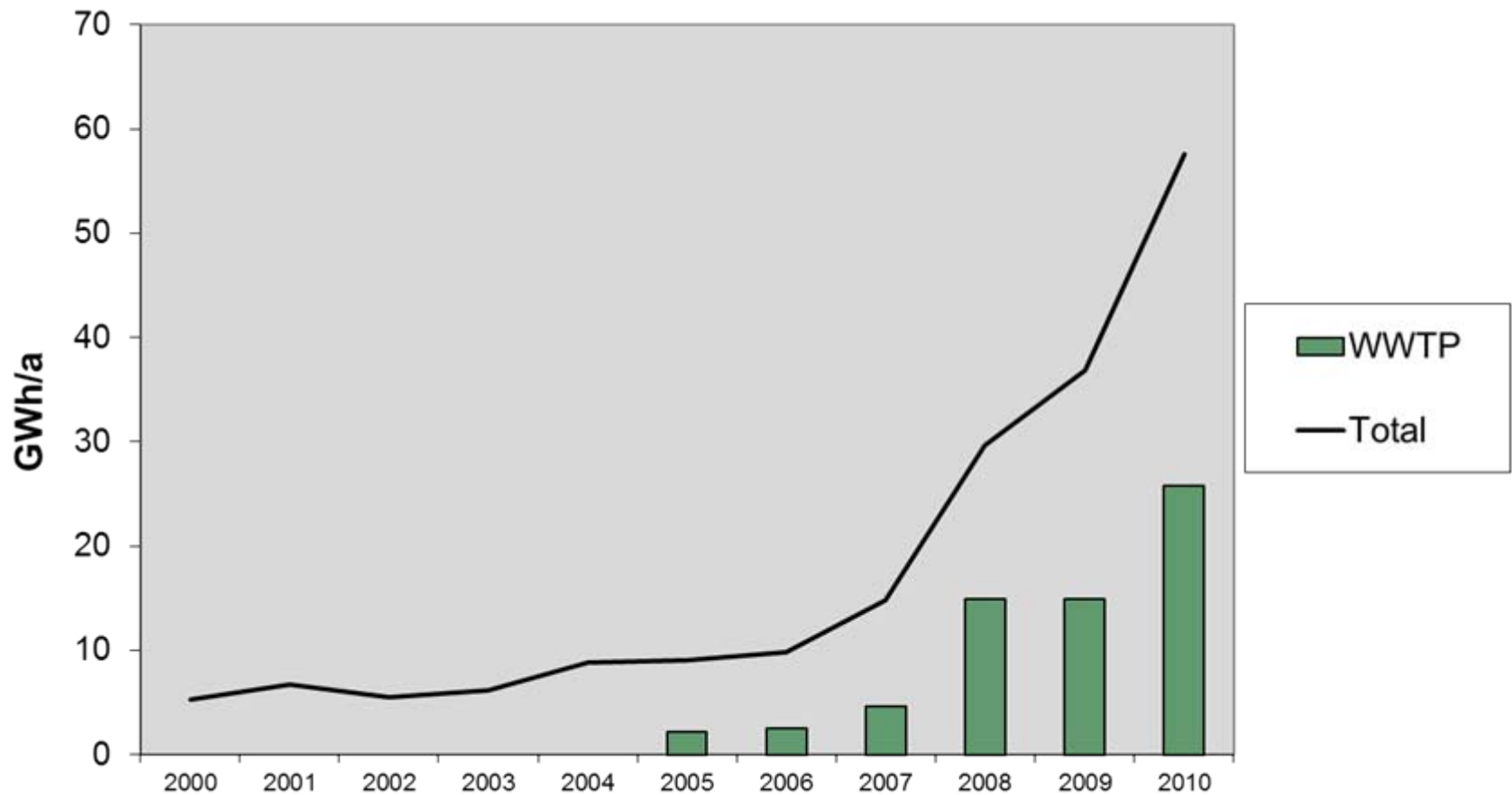
Biogas Plant Inventory

Biogas up-grading plants – development of installations



Biogas Plant Inventory

Biogas up-grading plants – gross gas production



New biogas plants

- **Münchwilen / Biorender (March 2011)**
 - 30'000 tpy, slaughterhouse- and biowaste, biogas upgrading
- **Cadenazzo / Biogastech (Weltech) (April 2011)**
 - agricultural residues, cogeneration
- **Wauwil / Kompogas (May 2011)**
 - 16'000 tpy, biowaste, cogeneration, first *recognized* CO₂ reductions
- **Liesberg / Eisenmann (May 2011)**
 - 10,000 tpy, biowaste, cogeneration
- **Chavornay / Kompogas (June 2011)**
 - 20'000 tpy, biowaste, cogeneration
- **Villeneuve / Kompogas (June 2011)**
 - 15,000 tpy, biowaste, cogeneration

Biogas plants under construction

- **Agricultural installations:**

Diesbach, Bure, Fleurier, Cernier Düdingen, Bellechasse, Noréaz, Zwillikon, Gollion

- **Waste Water Treatment Plants / Co-digestion:**

Frutigen



Legislation

Modification: Regulation on elimination of animal by-products

- No more animal feeding with food waste
- Thermophilic installations digesting biowaste have to prove the hygienisation effect of their technology (or apply a hygienisation step)

In force: July 2011

Modification: Regulation on cost-covering feed-in tarif (electricity)

- Possibility to sanction in case of abuse (temporary or definit exclusion)
- Specification of how to manage modifications and extensions of installations

In force: October 2011

In revision : Regulation on waste treatment

Discussion on codigestion in WWTP and on digestion temperature in agricultural plants (substrate hygienisation)



Studies and research projects

Appreciation of organic matter in LCA's

Evaluation of how to integrate the impacts of organic matter (in compost and digestate) in LCA's and how to quantify them

Study in process (M. Zschokke, Carbotech, K. Schleiss, UMWEKO GmbH)

Optimal plant size – LCA evaluation

Centralised versus decentralised agricultural biogas production

Study in process (A. Dauriat, ENERS Energy Concept Sarl)

Improvement of standardised tests in batch reactors

Experimental evaluation of parameter influence

Study in process (C. Holliger, LBE/EPFL)



Studies and research projects

MBR reactor: Digestion of manure and co-substrates

Efficiency improvement for economic and space savings

Study in process (J.L. Hersener, Ingenieurbüro Hersener / U. Baier, ZHAW)

Optimization of AD: Effects of thermochemical and enzymatic pretreatment and microbial additives

Improvement of anaerobic degradation

Study in process (U. Baier, ZHAW / J.L. Hersener, Ingenieurbüro Hersener)



Studies and research projects

- **Digestion- & composting installations as a hygiene barrier**
 - Evaluation of the hygienisation potential of the digestion process, including new substrates and processes on the market
 - Shows weak points on substrates, pathogens and technologies
 - Gives recommendations for optimized plant operation



Authors: U. Baier and R. Warthman (zhaw), K. Schleiss (UMWEKO)

Link : <http://www.biogas.ch/images/stories/pdf/Hygienebarrieren.pdf>