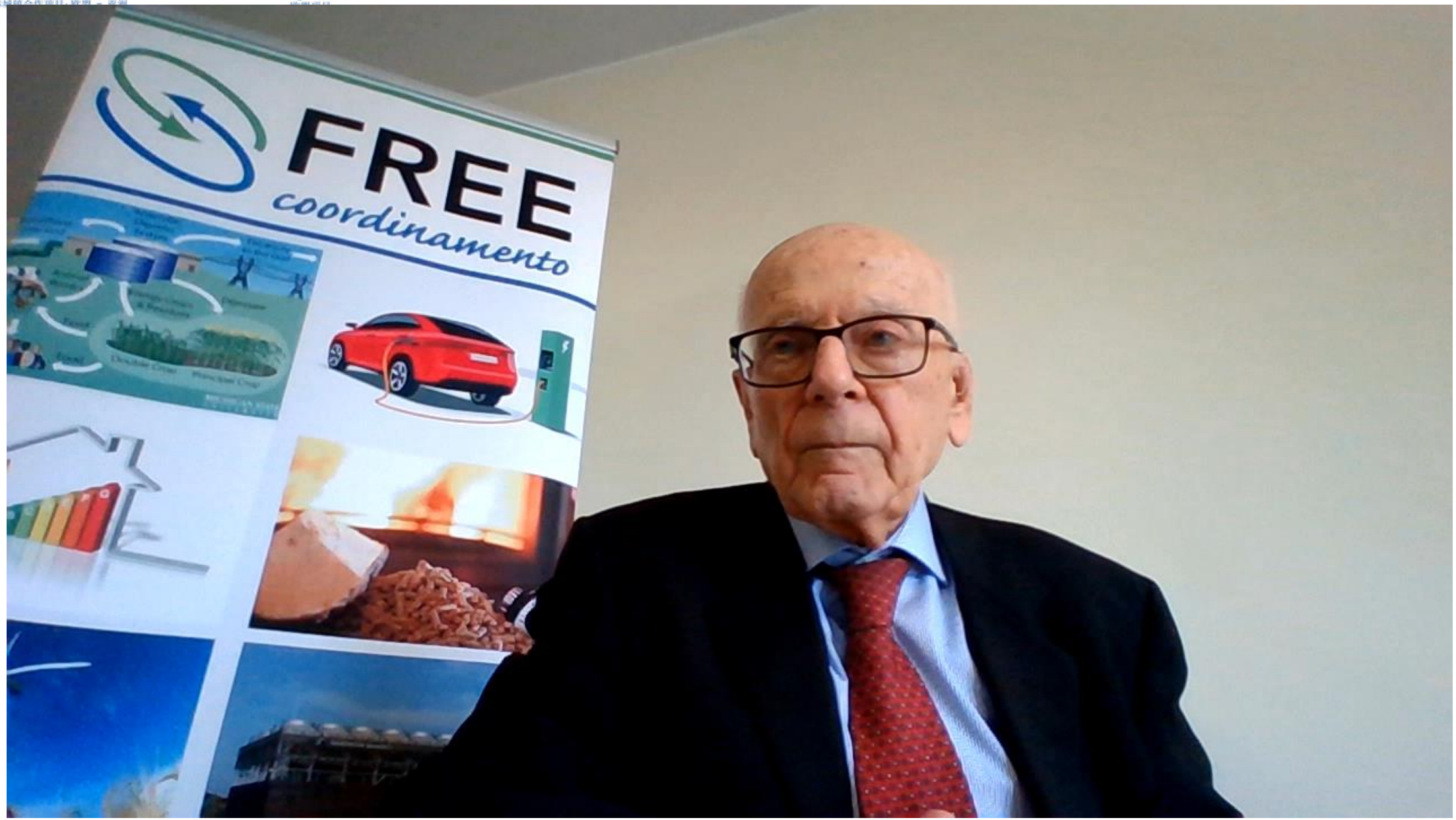
EU-China Smart City and Technology Innovation Forum

Chengdu, 11th June 2019

Smart city development driven by technology innovation, - Practices and cases from both EU and China

Coordinamento FREE: activities and possible types of cooperation

Davide Astiaso Garcia, Secretary General


FREE
coordinamento

Coordinamento FREE Coordination (**Coordination of Renewable Sources and Energy Efficiency**) is an Association that currently collects, in quality of Members, 27 Associations in whole or in part active in these sectors, in addition to a wide range of bodies and Associations that have requested to join as "aderenti" (without decision-making roles) and is therefore the largest Association of the sector in Italy. FREE aims to promote the development of renewables and energy efficiency within the framework of an environmentally sustainable social and economic model, the decarbonisation of the economy and the limitations of climate-changing emissions, starting from synergies and a more cohesive action between the Associations towards all the institutions and policy makers.

FREE coordinamento

COORDINAMENTO DELLE RINNOVABILI E DELL'EFFICIENZA
20.000 MW, oltre 3.000 aziende, più di 150.000 persone

SOCI

ADICONSUM
Associazione Difesa Consumatori e Ambiente promossa dalla CISL

AGROENERGIA

CARR
AiCARR
Cultura e Tecnica per Energia Uomo e Ambiente

AIEL
ASSOCIAZIONE ITALIANA ENERGIE AGROFORESTALI

ANEST

anev
associazione nazionale energia del vento

assieme
ASSOCIAZIONE ITALIANA ENERGIA MINI EOLICA

ASSISTAL

ASSOEBIOS
Associazione Operatori Elettrici da Biogas Sostenibili

assopetroli assoenergia

ATER
ASSOCIAZIONE TECNICI ENERGIE RINNOVABILI

CEI CIVES
Commissione Italiana Veicoli Elettrici Stradali a Batteria, Ibridi e a Celle a combustibile

CIB
CONSORZIO ITALIANO BIOGAS

ELETTRICITÀ FUTURA
imprese elettriche italiane

FE
federesco

FederIdroelettrica
Federazione Produttori Idroelettrici

GREEN BUILDING COUNCIL ITALIA

GIGA

ISES ITALIA

ITABIA
Italian Biomass Association

ITALCOGEN
ASSOCIAZIONE ITALIANA DEI COSTRUTTORI E DISTRIBUTORI DI IMPIANTI DI COGENERAZIONE

ITALIA solare
IL FOTOVOLTAICO È DI TUTTI

Kyoto Club

DISTRETTO PRODUTTIVO PUGLIESE
LA NUOVA ENERGIA

LEGAMBIENTE

MOVIMENTO DIFESA DEL Cittadino

Ordine degli Ingegneri della Provincia di Roma

ADERENTI

SI ALLE ENERGIE RINNOVABILI NO AL NUCLEARE

CHIMICA VERDE bionet

CENTRO DI RICERCA INTERDIPARTIMENTALE TERRITORIO EDILIZIA RESTAURO AMBIENTE CITERA

SAPIENZA
UNIVERSITÀ DI ROMA

CSI piemonte

UNIVERSITÀ DEGLI STUDI DI PALERMO

FIRE
FEDERAZIONE ITALIANA PER L'USO RAZIONALE DELL'ENERGIA

WWF

GREENPEACE

ie
istituto di ricerca per il risparmio energetico

MSA
Movimento per lo Sviluppo delle energie Alternative

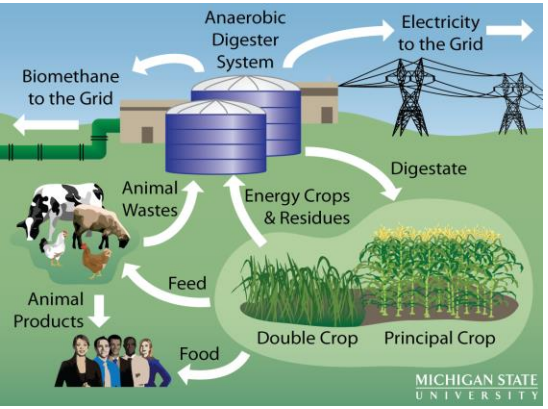
POLITECNICO DI MILANO

RE·CORD

Sotto il Monte Solare

Main sectors and expertise

Biogas



Biomasses

Sustainable mobility

Hydroelectric

Wind

Geothermal

Energy efficiency

Photovoltaic

4 MAIN TOPICS	Proposed COOPERATION ACTIVITIES
Multiscale Energy planning (from district to region) for integrated energy systems: analysis, design and optimization of **energy scenarios** including RES (renewable energy systems) potential assessment, **demand site management**, **heating & cooling, sustainable transport, waste**	**Training activities** at vocational, master and PhD levels, bilateral **researches and professional consulting**, **feasibility studies including technical and economic assessments**
Energy technologies for local production, **multi vector storage systems and energy management systems (ICT, smart grids)**	**Training activities** at vocational, master and PhD levels, **bilateral researches and professional consulting, research & development**
Energy policies at municipality and regional level: **decarbonisation strategies and best practices for reaching energy transition targets** considering **renewables, energy efficiency and transports.**	**Workshops with local institutions and stakeholders**. Joint participation to Ecomondo **Key Energy in Rimini (conference on Smart Cities: The Chinese and the Italian approach), training activities, researches, consultations and strategies for increasing RES penetration and the energy efficiency** at different scale, considering both the **technological and the regulatory, economic and non-economic barriers**.
Environmental protection strategies: best practices for prevention and mitigation of **soil, water and air pollution** including **IAQ** (indoor environmental quality)	Training activities at vocational, master and PhD levels, bilateral researches and professional consulting on: i) quantification of anthropogenic stressors for pollution sources; ii) **hazard, vulnerability and risk assessments and mapping** for the **identification and prioritization of areas with high environmental risk**; iii) **best practices for the mitigation of soil, water and air pollution**

A couple of examples: The italian wind farms – The risk of decomissioning

The Italian wind farm age

The Italian wind farm is gradually getting older

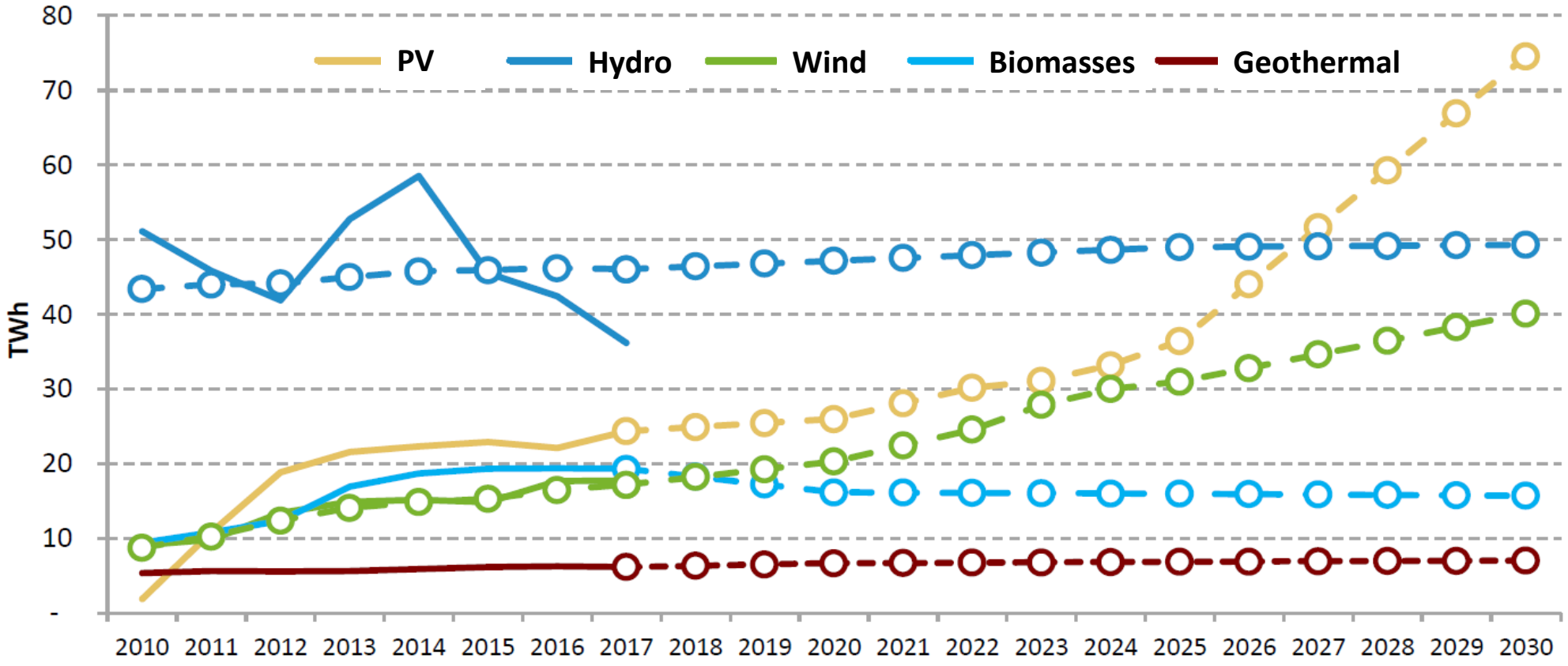
- Average age at 2018: 8 years
- Average age at 2030: 21 years

Decomissioning

Assuming the absence of repowering interventions, **a wind farm will be disposed between the 20 and 25 years of age** (depending on the characteristics of the project), **because there are not conditions for operating in a market - grid parity.**
It is estimated that the decomissioning of Italian wind power could be equal to **more than 3 GW at 2023 and 5 GW at 2030.**
Without new installations and considering the end of life of Italian Wind farms, the installed power would be equal to **7 GW**, corresponding to the installed power at **2011**.

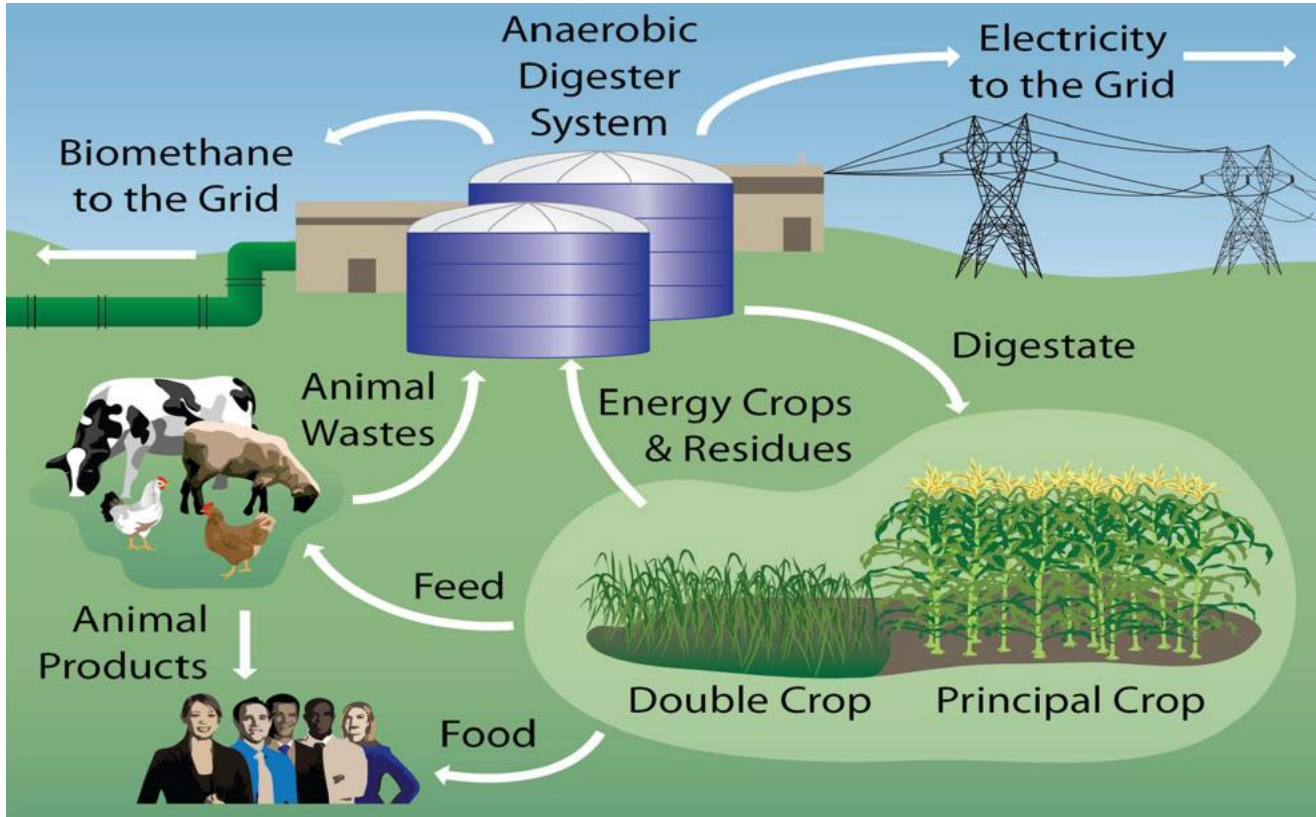
A big step backwards for the Italian wind energy industry and for its contribution to achieve the EU and Italian targets as recently represented by the Italian Government in the National Integrated Energy and Climate Plan (NECP).

Reblading and repowering wind farms to get the 2030 targets!



A couple of examples:
Guiding Principles: "Biogasdoneright"

- Grow regular crop for feed/food– no "food vs. fuel" conflict
- Grow a double crop to feed the anaerobic digesters (plus manure, other locally-available "wastes")
- Burn biogas on site to generate electricity for grid- use waste heat
- Fertilize fields with digestate liquid → reduce purchased fertilizers (and associated GHGs)→ reduce irrigation water
- Till in the residual digestate solids → rising soil carbon levels→ increased fertility and farm productivity→ low cost carbon capture & storage
- Pursue opportunities for increased resilience/value added:
  - Methane to biodegradable polymers for irrigation piping
  - Methane-powered tractors
- Improve profitability—increase income and resilience, reduce expenses
- We will be documenting/analyzing the Italian biogas experience in the journal *Biofuels, Bioproducts and Biorefining*



Stefano Bozzetto‘s farm: 2 biogas plants of 1 MW each. Daily feeding plan: 90 tons cow manure, 90 tons cow slurries, 38 tons eggs laying chicken manure, 10 tons rabbit manure, 5 tons spent mushrooms litter, 10 tons sugar beets, 30 tons corn silage, 5 tons rye grass (all wet weights)

You are all invited to
Key Energy – Ecomondo
Rimini, 5th – 8th November 2019

Many thanks for your attention!!!

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