



Thailand Biogas Experiences: Implementations and Policies

Pruk Aggarangsi

Energy Research and Development Institute-Nakornping

Chiang Mai University, Thailand

India Bioenergy Workshop

Deploying biogas and MSW-to-energy

July 13th, 2021





Energy Crop 600 MW

Donowable Energy	Installation	Performance		
Reliewable Ellergy	Target 2037 (MW)	2018	2021	
1. Solar	14,754.00	2,715.21	3,015.22	
2. Wind	2,989.00	927.82	1,506.82	
3 Micro Hydro	256.00	187.72	190.39	
4 Biomass	1,691.00	3,266.98	3,511.08	
5 Biogas	1,565.00	500.15	563.18	
6 MSW	828.00	273.40	338.68	
7 Large Hydro	2,918.00	2,911.41	2,919.66	
8 Other RE	0.30	0.30	0.30	
Total	28,004	10,783	12,045	





Thailand Biogas Capex Subsidy Schemes 1995 -2017



Biogas Promotion Budget

1996 : First Farm Biogas Demonstration 1997 : 1st Subsidy; 5 farms 50% Capex 1999 : 2nd Subsidy; 10 farms 50% 2003 : 3rd Subsidy; 300 farms 30% 2004 : 4th Subsidy; 1000 farms 30% 2010 : 1st Subsidy for agriculture industries; palm, starch, ethanol 20%



Biogas from Livestock



Biogas from Ind. Waste

Thailand Biogas Technology Development

Large Farms





1990 R&D in Fixed Dome 1st biogas plant



2002 3rd Supporting Program



2010 R&D / Demo

CBG / Local Grid

2020 Competitive Bidding: Energy Crop Community Power

19 <mark>90</mark>	<i>1995</i>	2000	2005	2010	2015	2020
1996 First Demo for Large Swine Farm		2006 First Large Agro Starch, Su	2006 First Supporting Program Large Agro Industries : Palm, Starch, Sugar		2016 First Demo MSW Dry Fermentation	
	1					





Waste and Energy Management with Biogas Cycle





Biogas as Common practice for farm waste management Governing laws and regulations:

- Pollution control on treated wastewater quality
- Community Impact and odor control

Biogas as pollution control and RE for agro. industries

- Wastewater treatment
- Renewable energy production and sales
- Community engagement

Flagship Project: Multi Waste Power Plant KCF Green Energy



Flagship Project: Compressed Bio-methane Gas (CBG) Production from POME





True Value of Community Power Plant





Community Engagement and Sustainability Mindset is always the 1st success factor









https://www.lifelong. cmu.ac.th/index.php











Thank you for your kind attention

Pruk Aggarangsi <u>www.erdi.cmu.ac.th</u> Tel: +6653-942-007 Email: pruk.a@cmu.ac.th





