

Project Development Programme (PDP) South-East Asia

## Policy Briefing Thailand: Biogas

*Version as of December 15, 2014*

### News

#### **Ambitious Support Programme for Biogas Pilot Projects on Energy Crops Suspended**

*Added October 21, 2014*

In 2013, Thailand ambitiously raised its national target from 600MW to 3,600 MW installed biogas capacity by 2021 as one of the means to reduce the country's dependence on fossil fuel imports. Under the new scheme, biogas plants of a combined capacity of 3,000MW running on energy crops were foreseen to be built within the next 8-10 years. In addition, 1,200 tons of Compressed Biogas (CBG) were intended to be produced daily. This additional target was announced in order to reduce the dependency especially in the transport sector is to produce 1.200 tons of compressed biogas per day that to replace CNG. Within this scheme, 12 pilot projects were selected that should serve to demonstrate the use of Napier Grass as feedstock for biogas plants with a capacity of up to 1MW. With a budget of 260 Million THB in the programme, 20% of the investment cost (but not more than 20 million Baht or 442,000 € per project) of each project would have been covered. Furthermore, a FiT of 4.5 Baht (10 €Cent\*) per kWh was intended to be granted to these pilot projects for the duration of 20 years. However, in July 2014, the National Council for Peace and Order (NCPO), the military regime ruling Thailand since the coup in May, terminated this support programme for 12 pilot projects. The programme was one of 21 programmes financed by the Energy Conservation (ENCON) Fund that have been ended by the NCPO because of "irregularities in the allocation of funds". Several German technology and service providers were involved in the projects. The companies can still develop the projects based on the current adder scheme, which will, however, have an impact on the bankability of each project.

#### **Biogas projects funded under industrial waste water programme**

*Added October 21, 2014*

According to the Energy Policy and Planning Office (EPPO), the untapped industrial biogas production potential in Thailand is about 637 million cubic meters per year. This number is based on an assessment of more than 338 production sites in the entire country, including cassava factories, palm oil factories, latex factories and hotels. This also includes the biogas potential from energy crops, as biogas projects based on energy crops are subsumed under the waste to energy category.

Under the Energy Conservation (ENCON) fund, which has a total budget of almost 4 billion THB, a project was designed to foster industrial investments into biogas projects in Thailand. Between January 2008 and January 2013 project developers needed to apply for and finalize their projects, and the projects needed to be

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put into operation until January 2013.

The projects chosen under this programme could benefit from subsidies of about 20 to 50 % of the total investment costs. The maximal financial support depends on the respective industrial sector: Whereas biogas generation by ethanol processing plants can be supported with up to 20 million THB, the subsidy is limited to 10 million THB for the case of oil mills and flour plants, and 6 million THB for the case of latex plants. Biogas projects based on energy crops are supported with up to 10 million THB.

As the programme has been approved in 2008, it has not been subject to the latest policy changes implemented by the National Council for Peace and Order (NCPO). In fact, the NCPO recently extended the period in which the selected projects can be put into operation until April 2015, because several project developers fell behind schedule.

Until now, around 60 companies benefited from this ENCON support programme on industrial biogas. As one example, the company Universal Absorbents & Chemicals (UAC), a leading Thai supplier of chemical products, in a joint venture with the Italian biogas specialist Sebigas managed to get ENCON support for the implementation of 10 biogas projects in the Khon Kaen province based on Napier Gras.

## Power Development Plan (2015-2036) to integrate Renewables and Efficiency Plans

*Added October 21, 2014*

However, the interest in and the support for biogas technology remains high, and a new feed-in tariff is currently under development. The Department of Alternative Energy Development and Efficiency (DEDE) is also revising the budget allocation from the ENCON Fund, and it is expected that under the military regime Thailand will focus more on solar energy and municipal waste-to-energy projects as part of a “second generation” of renewable energy schemes. The first generation included biomass, biogas, solar, wind and mini hydropower.

The Power Development Plan (PDP) is Thailand’s major plan for the country’s power system development and prepared by the state-owned Electricity Generating Authority of Thailand (EGAT). The existing PDP 2010 was supposed to be revised in 2013 already but due to the political situation, a new version could not be passed by the cabinet at that time. Next to the PDP, the AEDP and the Energy Efficiency Development Plan (EEDP) of Thailand are laying out targets for renewables and energy efficiency, however, largely independent from the PDP. According to the wish of Areepong Bhoocha-Oom, Permanent Secretary of the Ministry of Energy (MoE), the PDP is now **set to be revised** and cover the years **2015 to 2036**. Furthermore it is set to **integrate AEDP and EEDP** and thus to offer a more comprehensive approach to integrated energy planning. The ministry’s plans have been approved by the NEPC on August 15. A series of public hearings are scheduled to take place while the new PDP will be drafted. By the end of November, the draft is scheduled to be ready for approval. The initiative will be coordinated by the Energy Policy and Planning Office (EPPO). Surprisingly, the National Council for Peace and Order (NCPO) chief and now Prime Minister General Prayuth Chan-ocha stated that nuclear energy is not going to play a role in Thailand in the future. Prayuth

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addressed energy reform and energy security issues in a speech on August 9 and stated that constructing a nuclear power plant in Thailand will be very difficult.

## Background Information

### Development of the market: Continuous support for biogas development

As of early 2014, biogas plants with a capacity of 275 MW were installed in the kingdom. This is the result of continuous support measures for industrial scale plants since the 1990s: The “adder scheme” (feed-in premium) as well as tax incentives and investment grants have long been established, focusing on bio waste from pig farms and agricultural production e.g. in the starch-, palm oil and sugar industries.

Since the potential for biogas from agricultural residues in these industries is highly utilized already, newer political support programs focus on the support of energy crop cultivation and alternative raw materials. In addition, community based business models are supported in order to trigger local value creation and foster additional income for rural communities. The Ministry of Energy e.g. funds pilot plantations for Napier grass cultivation.

*Table 1 Installed Plants in Thailand\**

Industry/ Sector	No. Installed Plants	Of	Biogas production in Mio m <sup>3</sup> /a
Pig farms (subsidy phases I-III, 1995-2010)	271		88,6
Pig farms (2008-2012)	263		74,81
Small agricultural operations	575		9,51
Slaughterhouses (pigs)	12		0,74
Slaughterhouses (poultry)	5		6,02
Cassava starch	59		385,82
Palm oil	88		211
Ethanol	21		263,05
Caoutchouc	7		2,08
Foodstuff residues	47		51,27
Catering waste from hotels etc.	80		2,28
Others	140		427,37
<b>Total</b>	<b>1568</b>		<b>1522,55</b>

\*The overall number of plants might vary, since there might have been double counting of plants from different phases. In addition, plants that are not supported are not monitored.

Source: Energy Policy and Planning Office (EPPO), December 2013

### Relevant laws and political support

Although the support programme for pilot projects has been suspended, the Government emphasized that it

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will continue its focus and support for renewables to reach the country’s alternative energy target of 25% in the total energy mix by 2021. It is expected that under the military regime Thailand will focus more on solar and municipal waste-to-energy projects as part of a “second generation” of renewable energy schemes. The first generation included biomass, biogas, solar, wind and mini hydropower.

The adder scheme in Thailand provides a premium payment for biogas plants of 0.3 THB for projects pf 1-9.9 MW in size up to 0.5 Baht (below 1MW) per kWh (app. 0.7 – 1.1 € Cent) on top of the normal reimbursement for electricity fed to the grid. The adder thus tops up the base price of 2.89 THB/kWh (6.4 Cent) plus the fuel tariff of currently 0.59 THB/kWh (1.3 Cent), which amounts to a payment of 3.78-3.98 THB per kWh in total. The premiums are granted for seven years.

A new FiT that will most likely be granted to systems smaller than 1 MW in size is currently under discussion. The exact amount and design are unclear, but it is expected that the FiT will at least be 4.5 Baht (10 €Cent) per kWh granted for up to 20 years.

*Table 2 Current Adder Scheme*

	<b>THB</b>	<b>EUR Cent (1:45)</b>	<b>EUR Cent (1:40)</b>
Premium Capacity <1MW	0.5	1.1	1.25
Premium Capacity 1-9.9MW	0.3	0.7	0.75
Base Price	2.89	6.4	7.23
Fuel Tariff	0.59	1.3	1.48
<b>Total reimbursement &lt;1MW</b>	3.98	<b>8.8</b>	<b>9.95</b>
<b>Total reimbursement 1-9.9MW</b>	3.78	<b>8.4</b>	<b>9.45</b>

### Relevant Players in the Market and Industry Support

There is no active biogas association.

## Additional Information

### GIZ Support and Upcoming Activities on Biogas

12.03.2015 VIV Asia Biogas Conference 2015. [Programme and Registration](#).

2015: AHK Business Trip on Biogas to Thailand. More information coming soon. Contact: Marius Mehner, German-Thai Chamber of Commerce, mehner@gtcc.org.

### Recommended Readings

Biogas Journal (2014). Safety is vital aspect for the successful use of the biogas technology and one of the key focus areas for successful and sustainable market development in Thailand. The new Biogas-Journal in English language focuses on this important topic. Additionally it contains a summary of some of the activities GIZ and the German Biogas Association (Fachverband Biogas) are carrying out in the area of biogas in developing and emerging countries. [Download Biogas-Journal](#).

Holzhausen et al. (2014). Thailand: Bis 2021 zusätzlich 3.000 MW aus Energiepflanzen. In *Biogas Journal 2-2014*. [Download](#).

GTCC (2012). AHK-Zielmarktanalyse Thailand 2012: Energie aus Biomasse und Biogas. Available upon request.

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<http://thai-german-cooperation.info/renewables-sea.html>

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