

### 13th FYP for Rural Biogas Development 全国农村沼气发展“十三五”规划

The National Development and Reform Commission (NDRC) and the Ministry of Agriculture (MOA) jointly issued the 13th FYP for Rural Biogas Development (2016-2020) in January 2017.

#### Potential feedstock resources

The resources for rural biogas include crop straws, livestock waste, waste from agricultural product process, vegetable residues, rural organic domestic waste etc. The estimated total waste resources usable for biogas is about 1.4 billion ton, of which crop straws over 100 million ton, livestock waste over 1000 million ton, other organic waste over 100 million ton, could potentially generate biogas 122.7 billion m<sup>3</sup>.

Crop straws – In 2015, total crop straws were estimated at 1.04 billion ton, the collectable straws 900 million ton, of which 180 million ton can be used for biogas, which could produce 50 billion m<sup>3</sup> biogas.

Livestock waste – in 2015, the waste from pig, cattle and chicken was 1.9 billion ton, about 840 million ton were composted, and 1,060 million ton could be used for biogas, which can produce 64 billion M<sup>3</sup> biogas.

Other organic waste – 164 million ton can be used for biogas, produce 8.7 M<sup>3</sup> biogas.

#### The key development targets

Rural biogas development target in the 13 <sup>th</sup> FYP (2016-2020)				
Indicator		Unit	Present status (2015)	Target (2020)
Scale	Large scale bio natural gas projects	unit	25	197
	Large scale biogas projects	unit	6972	10122
	Mid and small biogas projects	unit	103476	128976
	Household biogas	10,000 households	4193	4304
Capacity	Biogas production	100 million M <sup>3</sup>	158	207
	Biogas fertilizer	10,000 ton	7100	9751
Agricultural eco-environment	Agri-waste process capacity	10,000 ton/year	200000	208047
	CO <sub>2</sub> reduction	10,000 ton/year	2860	4622
	COD discharge reduction	10,000 ton/year	1209	1581

## **The key tasks**

The Plan laid out four key tasks for the biogas development in the 13<sup>th</sup> FYP:

1. Optimise the structure of rural biogas development  
This includes the development of “plantations (fruits, tea, vegetables) +biogas projects + livestock farm” models, in accordance with the distribution and nutrient demand of plantations (fruits, tea and vegetables).
2. Upgrade the utilisation of biogas products (gas, solid and liquid residues)  
This include promoting multi-purpose use of liquid and solid residues to produce processed organic fertilisers, base material, bio-pesticides; promoting the circular agriculture model of “plantations + biogas + livestock farm” , development of integrated storage – transportation – fertigation system.
3. Lift the level of science and technology innovation  
This includes the establishment of biogas innovation platforms and key laboratories, improve the laboratory facilities, establishment of pilot experiment bases; promoting the partnership and cooperation between research institutes, universities and leading enterprises.
4. Strengthening the supporting and facilitation

## **The key projects**

1. Large scale bio natural gas projects  
The scale will be at production capacity over 10,000 m<sup>3</sup>/day.
2. Large scale biogas projects  
The capacity of the digester will be 500 m<sup>3</sup> and over.
3. Household, small and medium biogas projects  
These will include the household biogas digester with capacity between 8 and 10 m<sup>3</sup>; small and medium anaerobic digester s with the size between 20 and 500 m<sup>3</sup>.
4. Facilitating capability development projects  
These include technology innovation capacity building. Establishing one national level biogas research platform, three regional biogas research platforms, five key laboratories, one national biogas data centre.

## **The investment**

To achieve the above targets, Chinese government will spend 50 billion Yuan (about \$7.3 billion) on building the various biogas projects, in which 18.12 billion Yuan for large scale bio natural gas projects, 9.1 billion Yuan for medium biogas projects, 5.9 billion Yuan for small scale biogas projects, 3.33 billion yuan for household biogas projects, and 189 million Yuan for the biogas science and technology innovation platforms.

The enterprises and individuals should play a key role in financing the projects, private investment should be encouraged. The central and local governments provide appropriate subsidies.

## **Supporting policies**

Five policy measures are proposed to ensure the implementation of the Plan.

1. Establishing the multiple investment mechanism

Innovating the patterns of government investment, improving the public-private partnership (PPP) mechanism, fulfil the leverage effect of government investment. Exploring the mechanism of emission trading for large scale biogas projects.

2. Perfecting the rural biogas preferential policies

Establishing compulsory policies and rewarding mechanism on waste recycling in largescale livestock farms, perfecting the subsidies policies for biogas, biogas fertilizers and other products.

3. Creating fair competitive environment for biogas products.

4. Speeding up the perfection of biogas standards

5. International cooperation

On a mutual beneficial base, strengthening the cooperation with enterprises in developed countries, learning their advanced technologies and management experiences, selectively introducing the advanced foreign technologies, manufacturing process and key equipment/facilities. Fully use of the grants and loans provided by international financing organisations, promote the leading enterprises to a higher level, accelerate the industry technology development.

(The full text (in Chinese) of the “13<sup>th</sup> FYP for Rural Biogas Development” is available at <http://www.ndrc.gov.cn/zcfb/zcfbghwb/201702/W020170210515499067992.pdf> )

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