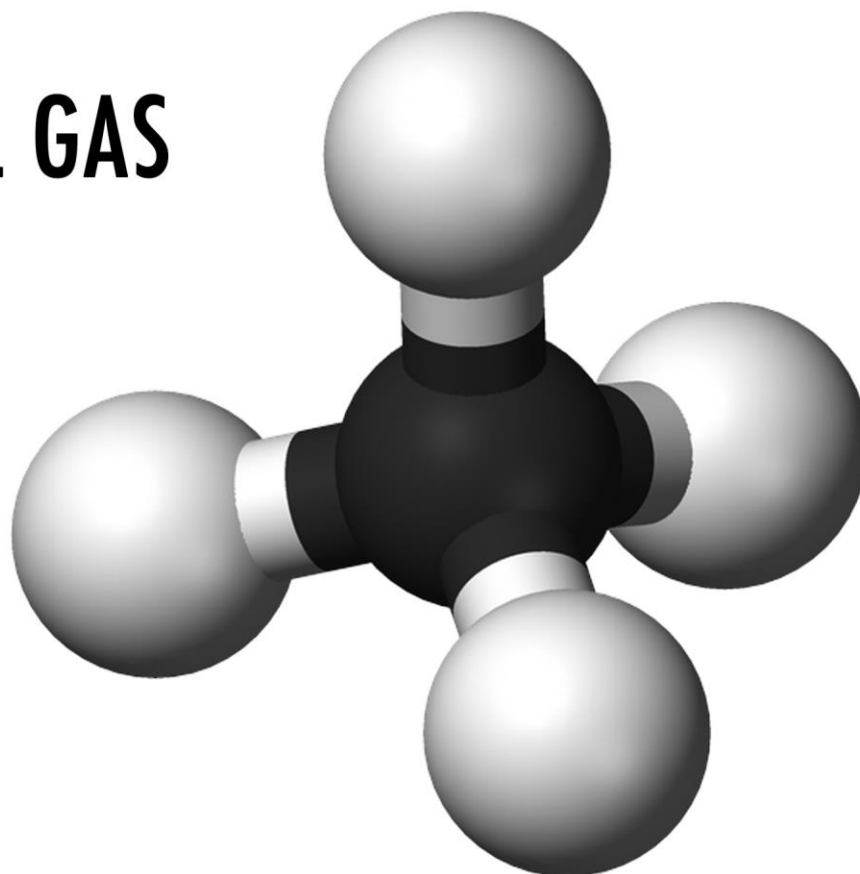


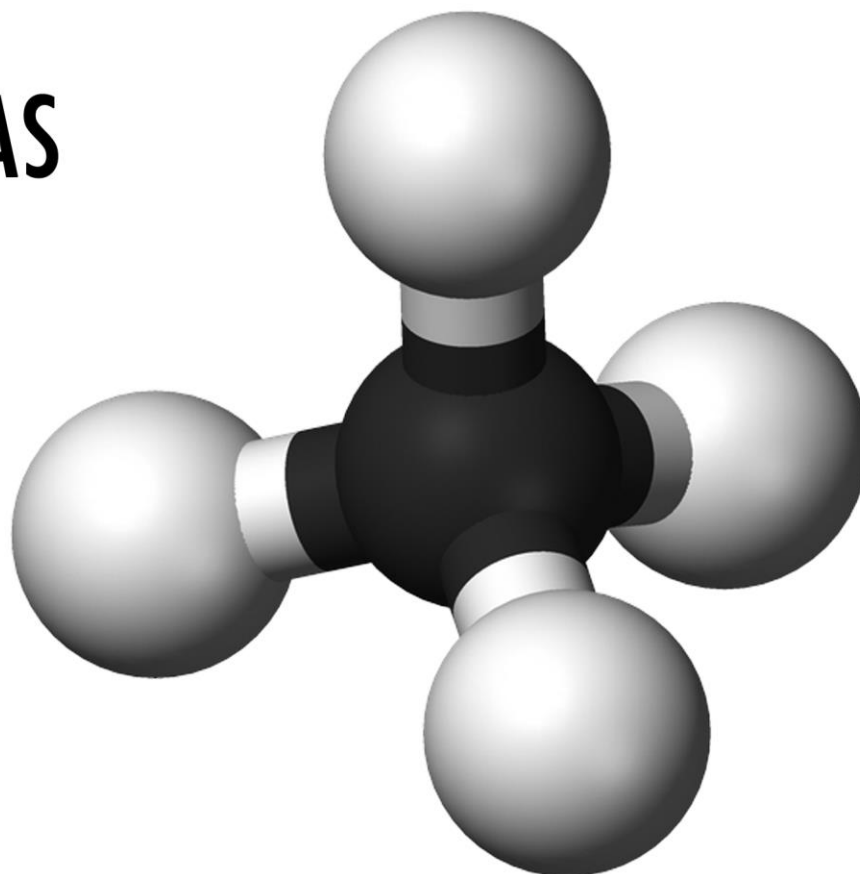
How Biogas Fits into the Gas Market and Energy Transition?



NATURAL GAS



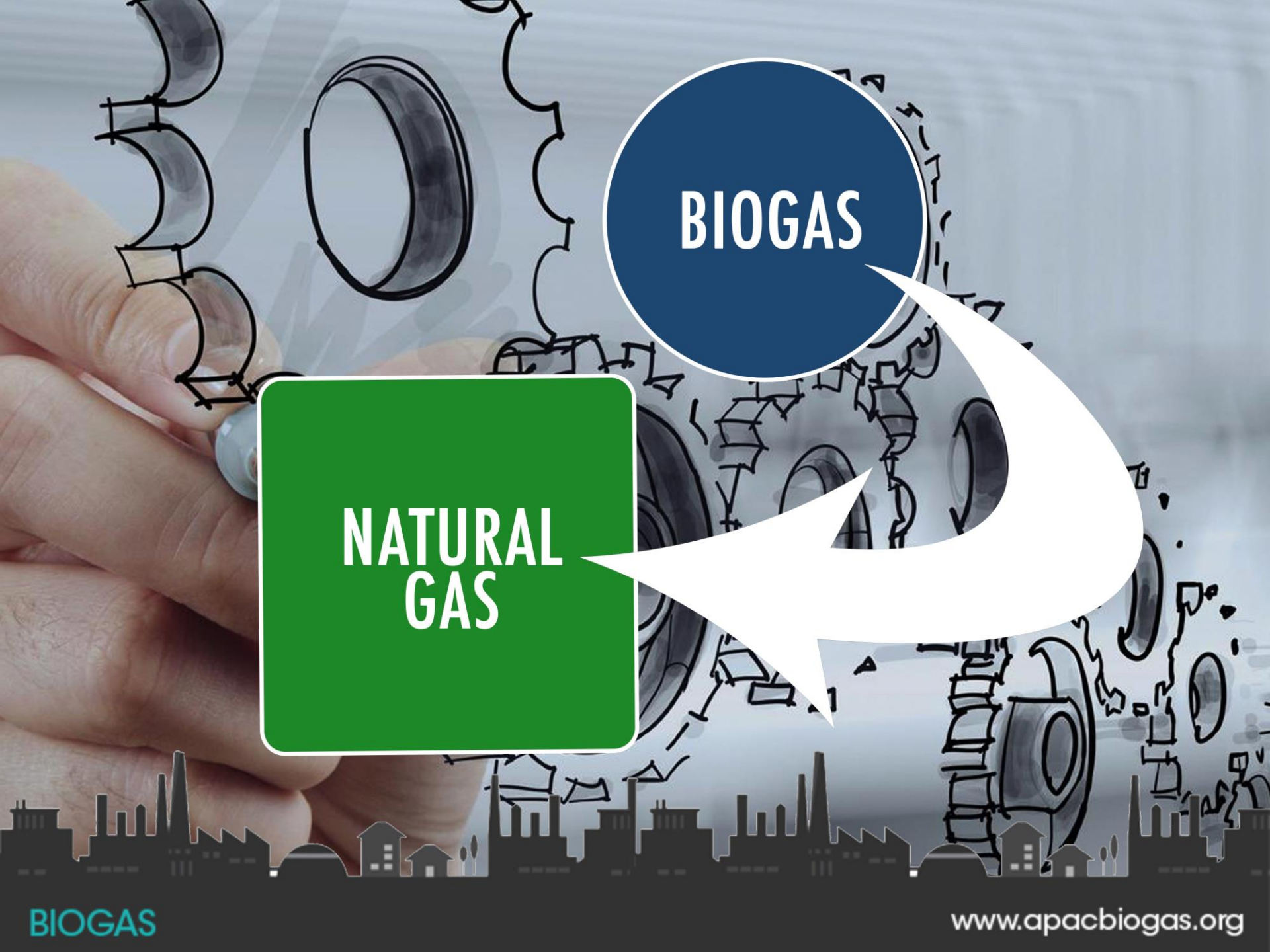
BIOGAS



BIOGAS VERSUS NATURAL GAS

- | | |
|--|------------------------------|
| • Methane: 50–85% | • Methane: 83–98% |
| • CO ₂ : 15–50% | • CO ₂ : 0–1.4% |
| • Nitrogen: 0–1% | • Nitrogen: 0.6–2.7% |
| • Hydrogen Sulphide:
Up to 4,000 ppmv | • Hydrogen Sulphide:
- |
| • Wobbe Index: 4.6–
9.1 | • Wobbe Index: 11.3–
15.4 |





BIOGAS

**NATURAL
GAS**

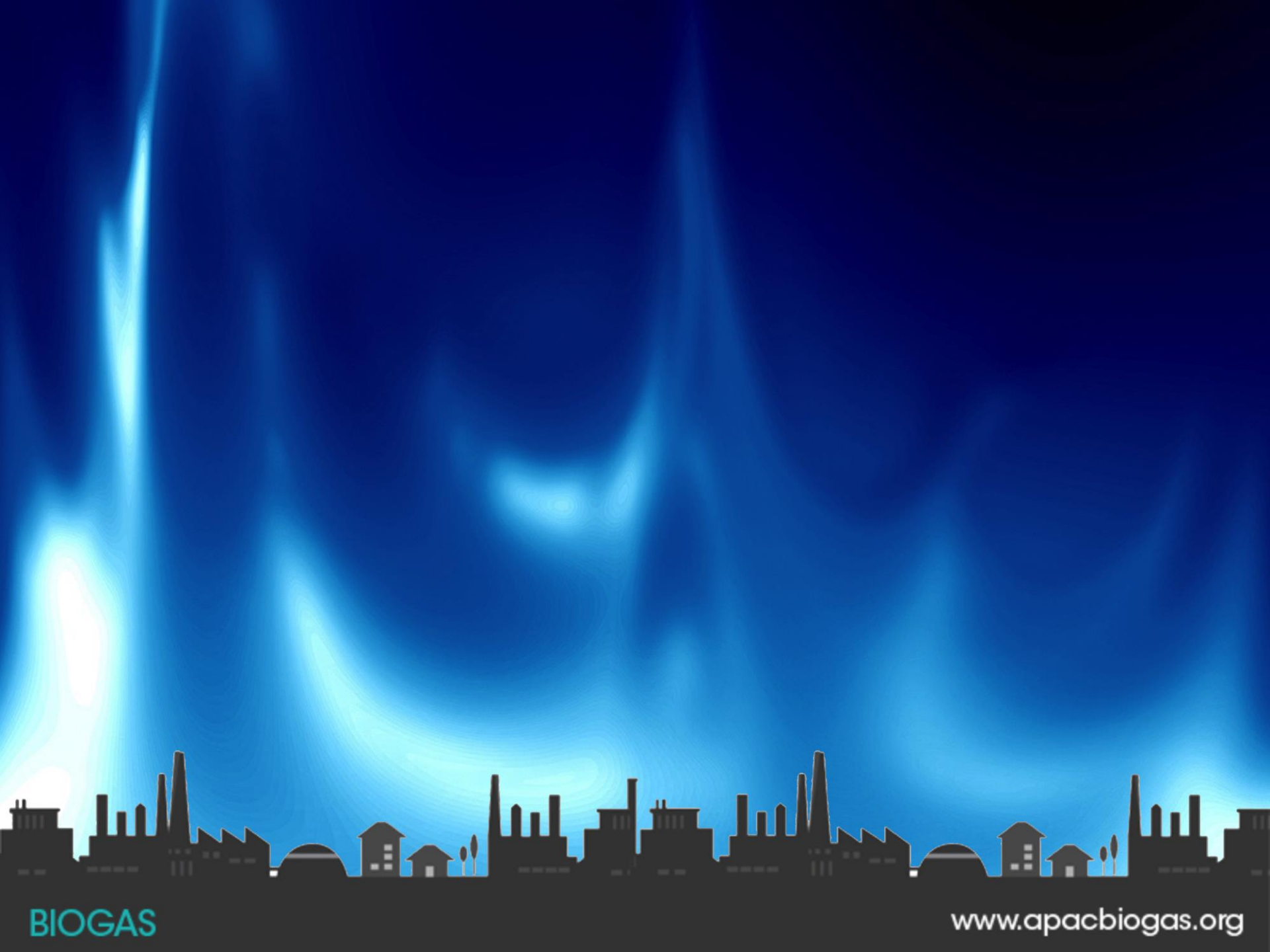


MEMBRANE



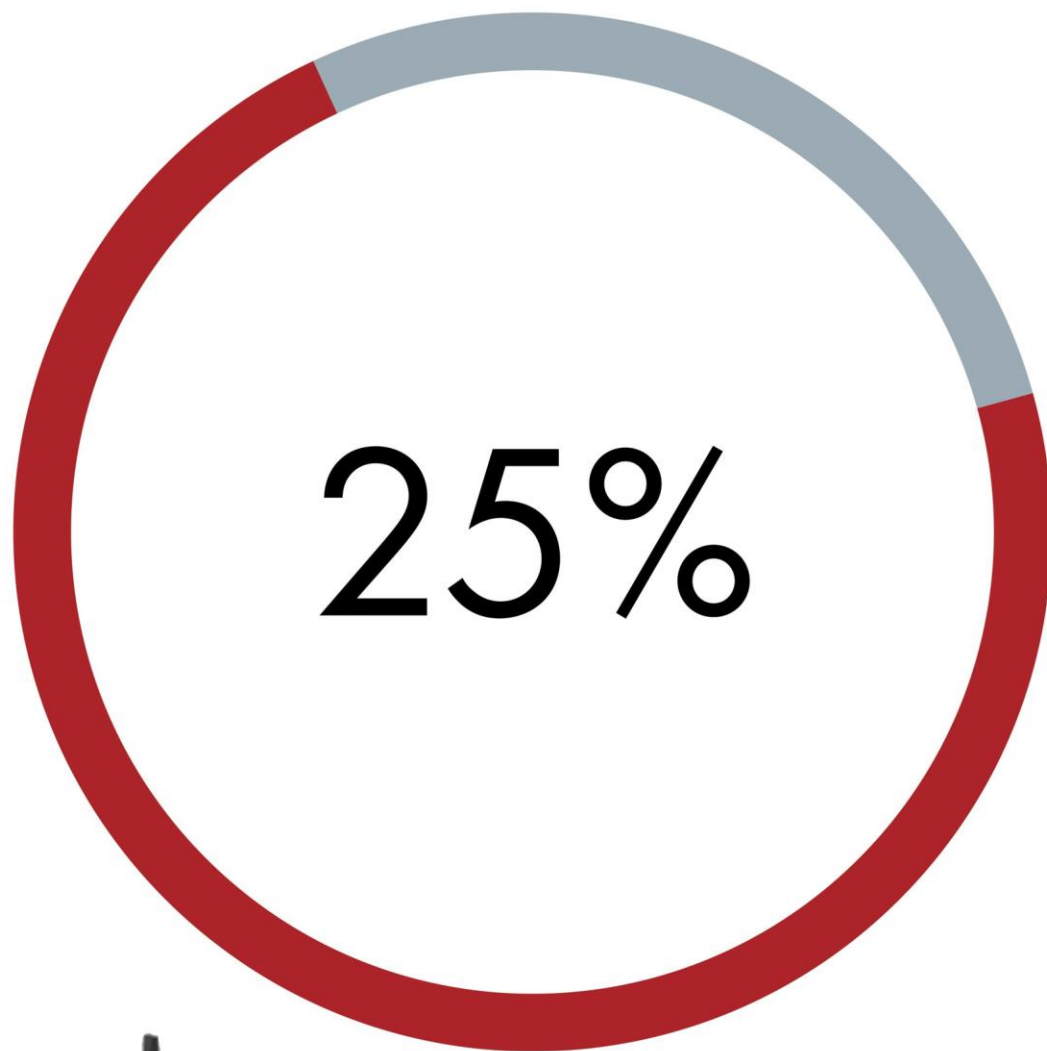
PSA





BIOGAS

www.apacbiogas.org



* SOURCE: WORLD BIOENERGY ASSOCIATION

NATURAL GAS INDUSTRY

US\$169 BILLION

* SOURCE: EIA





BIOGAS

www.apacbiogas.org



BIOGAS

www.apacbiogas.org



Recycle

Emission

Sustainable
development

Greenhouse
gas

Climate
change

Business

Environment

Industry

Energy
saving



REDUCE GLOBAL EMISSIONS

18 - 20%





DECARBONISE HEAT SUPPLY





REDUCE GHG FROM TRANSPORT

15 - 20%







**IMPORTED
2.4 BCM
OF LNG**

***2014**



**1 BCM
FROM
POME**



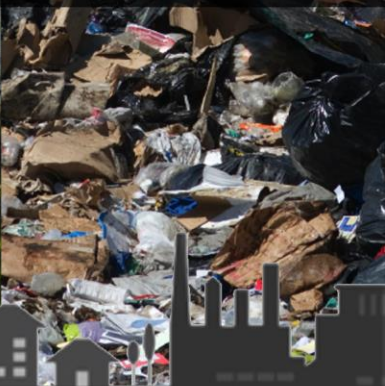
PALM OIL

AGRICULTURE

FOOD

WASTEWATER

MSW



WHY BIOGAS?



**WASTE MANAGEMENT
SOLUTION**



**ENERGY
SOLUTION**



**CLIMATE CHANGE
SOLUTION**





ASIA

ENVIRONMENT FOR BIOMASS GROWTH





LARGE AGRICULTURE INDUSTRY

A photograph of two children in a large pile of garbage. The child on the right is standing, wearing a red and white checkered headscarf and a light-colored sleeveless top. The child on the left is sitting, wearing a wide-brimmed hat and a dark tank top, holding a piece of white paper. The background is a massive pile of trash under a cloudy sky.

PROBLEM WITH WASTE



**ENERGY
SUPPLY**



**ENERGY
DEMAND**



BIOGAS

www.apacbiogas.org

TRANSPORTING BIOGAS



SUNGEI TINGGI, MALAYSIA



TRANSPORTING BIOGAS



SUNGEI TINGGI, MALAYSIA

BIOGAS FOR TRANSPORTATION

CHIANGMAI, THAILAND



BIOGAS

www.icesn.com

BIOGAS FOR TRANSPORTATION



CBG - LPG REPLACEMENT



CHIANGMAI, THAILAND



BIOGAS FOR COOKING

BIOGAS FOR COOKING



BIOGAS/BIOMETHANE MINI GRID



CHIANGMAI, THAILAND

<https://www.facebook.com/BiogasAPAC/>

