



# AXIS Tech

## Emissions reduction projects

### About Us

**AXIS Tech** is one of the leading biomass energy equipment companies in the Baltic states that have been supplying green and sustainable energy solutions to cities and individual enterprises for three decades. This experience made our company an expert in generating energy from renewable biomass.

The scope of **AXIS Tech** covers:

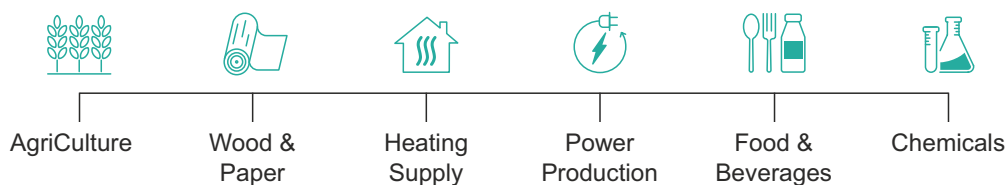
- Biomass energy equipment
- Emissions reduction projects
- Biomass boiler plant efficiency solutions

### Standards

Converting biomass into clean energy with a minimal environmental impact is a huge challenge that requires complex engineering of combustion processes with the highest standards. **AXIS Tech** is a reliable partner in biomass energy solutions - the company is compliant with the ISO and OHSAS quality standards.

|                                  |                                                         |
|----------------------------------|---------------------------------------------------------|
| <b>ISO 14001:2015</b>            | ENVIRONMENTAL<br>MANAGEMENT SYSTEM                      |
| QUALITY<br>MANAGEMENT<br>SYSTEMS | <b>ISO 9001:2015</b>                                    |
| <b>OHSAS<br/>45001:2018</b>      | OCCUPATIONAL HEALTH<br>AND SAFETY MANAGEMENT<br>SYSTEMS |

### Industries we work in





# What causes pollution?

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Nox is a term for the nitrogen oxides that are most relevant for air pollution, containing nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). These gases contribute to the formation of smog and acid rain, as well as it affects tropospheric ozone, which is considered as a greenhouse gas and contributes to global warming. What is more, NO<sub>x</sub> not only affects the earth, but it also has outcomes on our health – there is strong evidence that NO<sub>x</sub> can trigger and exacerbate existing asthma symptoms, and it has also been associated with heart disease, diabetes, birth outcomes.

## NO<sub>x</sub> reduction solutions

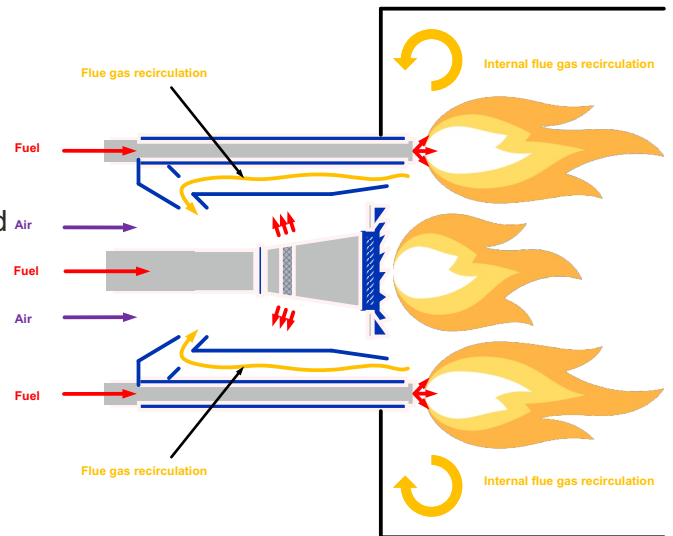
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Ultra-low NO<sub>x</sub> burners and SNCR technologies are installed in numerous grate-fired plants with various fuels, such as natural gas, biomass, or heavy fuel-oil which are operated according to the current regulations of NO<sub>x</sub>-reduction rates. Additional policies and measures will be needed to be taken to follow the European Commission's proposals of the EU greenhouse gas emission reductions target for 2030 from 40 % to 55 % (below 1990 levels) and to reach climate neutrality by 2050. This means for most of the power plants that the existing boilers must be shut down or measures must be taken to follow the stringent regulations to control emissions like NO<sub>x</sub>.

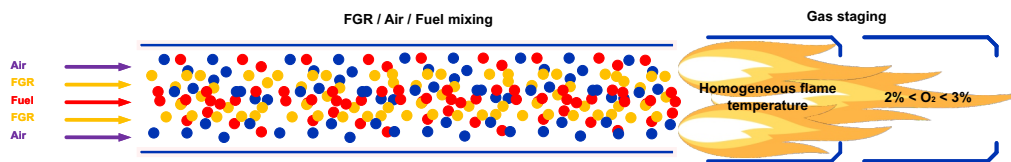
# Types of NOx reduction technologies

**AXIS Tech** can deliver NOx reduction technologies that are a fundamental part to reduce NOx emissions for conventional power plants that burn natural gas, biomass, or heavy fuel oil. The company has practiced in working with these types of NOx reduction technologies:

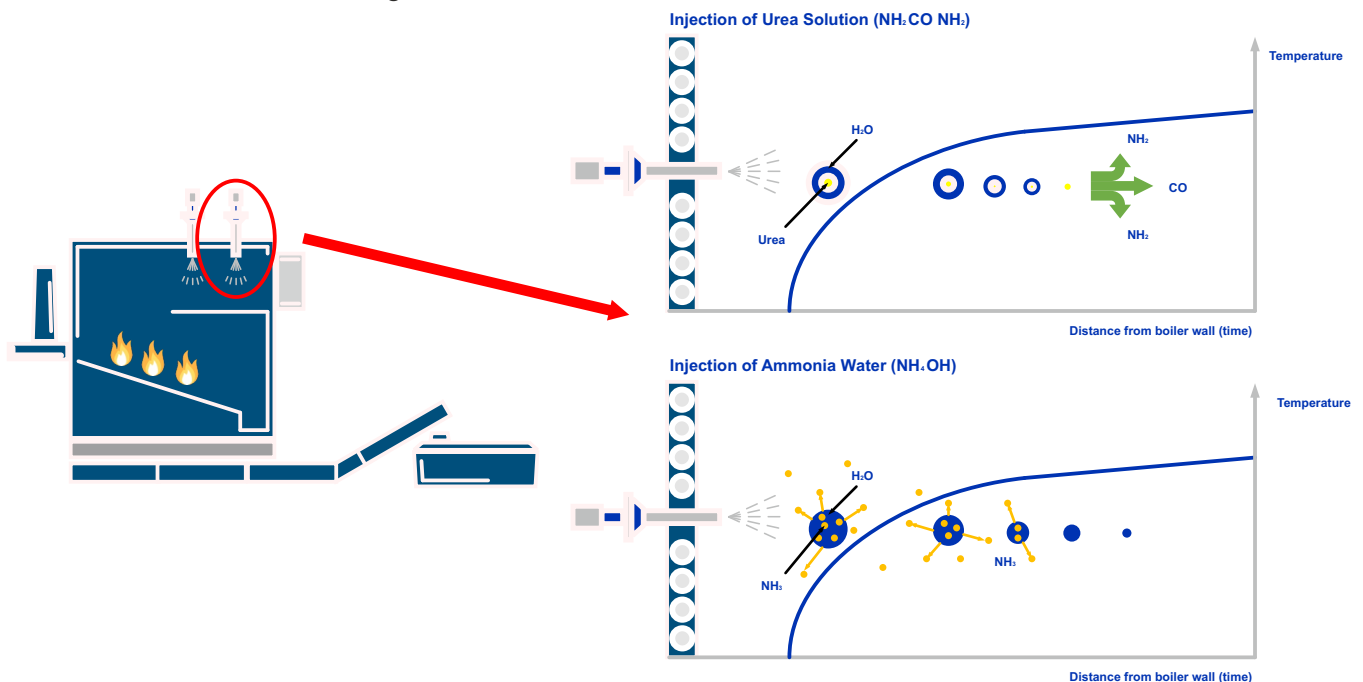
- **Low NOx burners.** Combustion NOx-control technologies aim is to minimize the formation of NOx when the combustion is taking place.



- **Ultra-low NOx burners.** In this solution the flue gas is mixed with air before injection into the combustion zone, resulting in consistently low-temperature flames.



- **SNCR systems.** Post-combustion NOx-control technologies that reduce NOx to  $N_2$  and  $H_2O$  with ammonia or urea-based reagents.



Together with our main partners **Fives** we manage to achieve significant results in NOx reduction projects. Fives has over 100 years' experience in industrial engineering of high-efficiency Pillard equipment, cutting-edge combustion technologies, and ultra low-NOx solutions to help customers exceed their objectives to optimize energy consumption and reduce emissions. This successful collaboration of two strong companies with high-tech solutions, experience and meticulous contract execution lead to the reconstruction of PTVM, KVGM, TVGM, TGME types of boilers that comply with the latest EU emission directives.

# References

## Projects for reducing NOx

|                 |                          |                                                                                                                                                                                         |                      |
|-----------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 2022<br>ongoing | Klaipėdos energija       | Renovation of KVGM-100 water heating boiler systems with reduction of NOx emissions <100 mg / Nm <sup>3</sup> .                                                                         | Klaipėda, Lithuania  |
| 2022<br>ongoing | Šiaulių Energija         | Upgrading of PTVM-50 (57 MW) water heating boiler systems by reducing NOx emissions < 100 mg / Nm <sup>3</sup> .                                                                        | Šiauliai, Lithuania  |
| 2022            | Šiaulių Energija         | Upgrading of PTVM-100 (116 MW) water heating boiler systems by reducing NOx emissions < 100 mg / Nm <sup>3</sup> .                                                                      | Šiauliai, Lithuania  |
| 2021            | Vilniaus Šilumos tinklai | Upgrading of BKZ-75 steam boiler systems by reducing NOx emissions < 100 mg / Nm <sup>3</sup> .                                                                                         | Vilnius, Lithuania   |
| 2019            | Vilniaus Šilumos tinklai | Upgrading of PTVM-100 (116 MW) water heating boiler systems by reducing NOx emissions from 270 mg/Nm <sup>3</sup> to 80 mg/Nm <sup>3</sup> .                                            | Vilnius, Lithuania   |
| 2018            | ORLEN Lietuva            | Upgrading of TGME-464 (450 MW 500 t / h) steam boiler by reducing NOx emissions to 200 mg / Nm <sup>3</sup> from gas combustion and to 450 mg/Nm <sup>3</sup> from fuel oil combustion. | Mažeikiai, Lithuania |
| 2016            | Vilniaus Energija        | Upgrading of PTVM-100 (116 MW) water heating boiler systems by reducing NOx emissions from 160 mg/Nm <sup>3</sup> to 100 mg/Nm <sup>3</sup> .                                           | Vilnius, Lithuania   |
| 2015            | Vilniaus Energija        | Upgrading of TVGM-30 (35 MW) water heating boiler systems by reducing NOx emissions from 280 mg/Nm <sup>3</sup> to 100 mg/Nm <sup>3</sup> .                                             | Vilnius, Lithuania   |
| 2015            | Vilniaus Energija        | Upgrading of PTVM-100 (116 MW) water heating boiler systems by reducing NOx emissions from 200 mg/Nm <sup>3</sup> to 75 mg/Nm <sup>3</sup> .                                            | Vilnius, Lithuania   |
| 2015            | Vilniaus Energija        | Upgrading of PTVM-100 (116 MW) water heating boiler systems by reducing NOx emissions from 270 mg/Nm <sup>3</sup> to 100 mg/Nm <sup>3</sup> .                                           | Vilnius, Lithuania   |
| 2015            | Vilniaus Energija        | Design and installation of SNCR system for BKZ-50 (60 MW) steam boiler by reducing NOx emissions from 370 mg/Nm <sup>3</sup> to 300 mg/Nm <sup>3</sup> .                                | Vilnius, Lithuania   |

GET IN TOUCH!

SCAN ME!

+37037424514  
info@axt.eu  
www.axt.eu  
 @AXIS Tech

 Chemijos 15,  
51332, Kaunas,  
Lithuania

