

Fives benefits from an extensive experience in implementing various technologies for alternative fuels, for different types of projects.

Cement | Minerals



Solutions for Alternative Fuels



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Building your project
from engineering studies to commissioning

- Reliable solutions in the fields of combustion and energy
- A combination of industrial performance with sustainable development
- A global offer ranging from engineering expertise and process equipment supply to experienced project management

Fives' solutions for alternative fuels reduce operating costs and limit the environmental footprint of the production

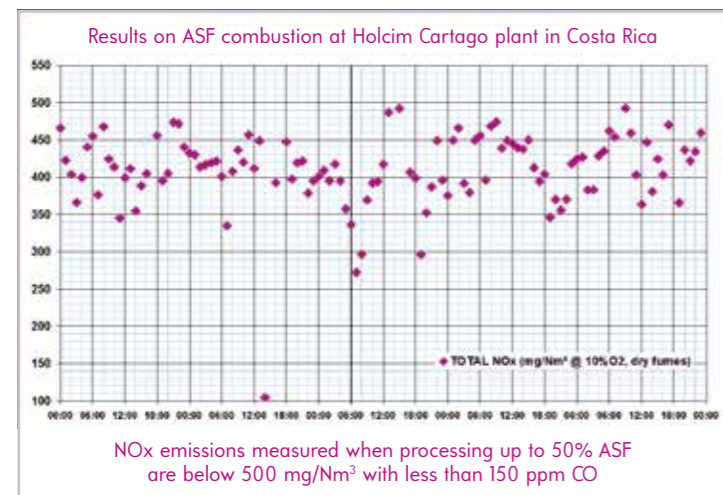
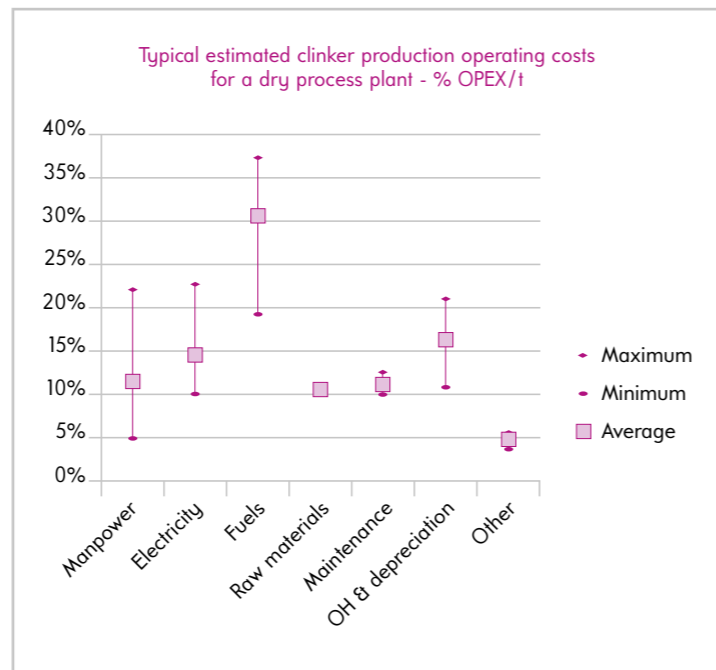


COST EFFECTIVENESS

- Conventional fossil fuels can amount up to 30% of operating costs depending on the plant's process and location
- Alternative fuels allow a significant reduction in the consumption of the cost-increasing sources of energy
- Up to 80% of substitution ratio with alternative fuels can be obtained with dry process systems
- Alternative fuels allow a fast return on investment

SUSTAINABILITY

- Alternative fuels are a profitable, safe and proven form of recycling, from waste products to by-pass products
- Fives' state of the art technologies support plants in reducing VOC, SOx and NOx emission rates to meet international regulations
- The use of alternative fuels:
 - Enables to preserve the limited natural resources
 - Complies with Corporate Social Responsibility policies



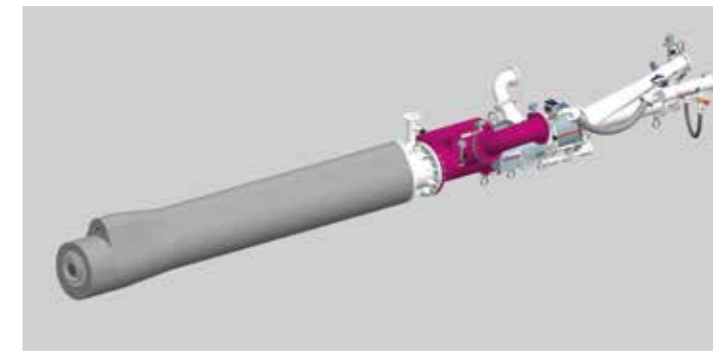
From feasibility studies, engineering, procurement to construction and commissioning, Fives is your partner of choice for projects using alternative fuels:

- Greenfield or Brownfield project
- Immediate or future implementation of alternative fuels
- Retrofit or revamping of plants in operation
- Partial or complete conversion to alternative fuel processing

Fives, a double expertise as process equipment supplier and turnkey contractor

Relying on both its process know-how and its extensive experience in project management, Fives has developed complete solutions to support its clients in implementing and using alternative fuels in their operations:

- A process expertise to optimize the pyroprocess parameters to the targeted sources of alternative fuels
- First class proprietary equipment and solutions to guarantee efficient ignition and combustion of the alternative fuels:
 - FCB Zero-NOx Preca
 - Pillard NovaFlam®, Pillard RotaFlam® and Pillard PrecaFlam™ burners
 - TGT® and SONAIR™ process filters



Pillard NovaFlam® burner firing alternative fuels.

A COMPREHENSIVE SOLUTION

- Storage
- Alternative fuel preparation platform
- Handling systems
- Dosing systems
- Combustion solutions and pyroprocess equipment with low emission level (calciner, kiln, burner...)
- Process control & optimization



ENGINEERING & TURNKEY CONTRACT MANAGEMENT EXPERTISE

- Material testing and feasibility studies
- Process guarantee definition
- Basic & detailed engineering
- Process control and optimization
- EP to EPC delivery
- Technical assistance and customer service



Pillard PrecaFlam™ burner with inlet to feed coarse alternative fuels.

- Equipment design and installation to allow the maximum flexibility and to process all types of alternative fuels: tyre chips, wooden chips, plastic fluff, waste oils, sludge...
- Adaptation of the feeding mode at precalciner, kiln inlet, kiln main burner...
- Adaptation to the existing lay-out constraints and for operating units with a minimum impact on the current production