



PRODUCTION OF SULPHURIC ACID USING ACID GAS FROM OIL REFINERIES

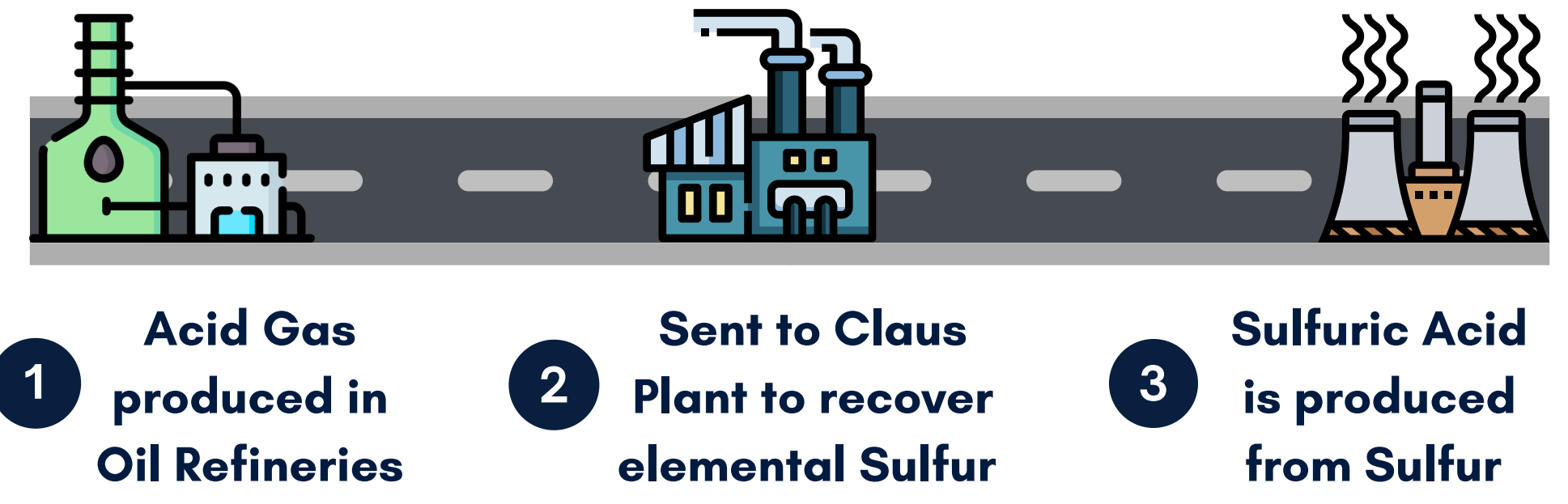


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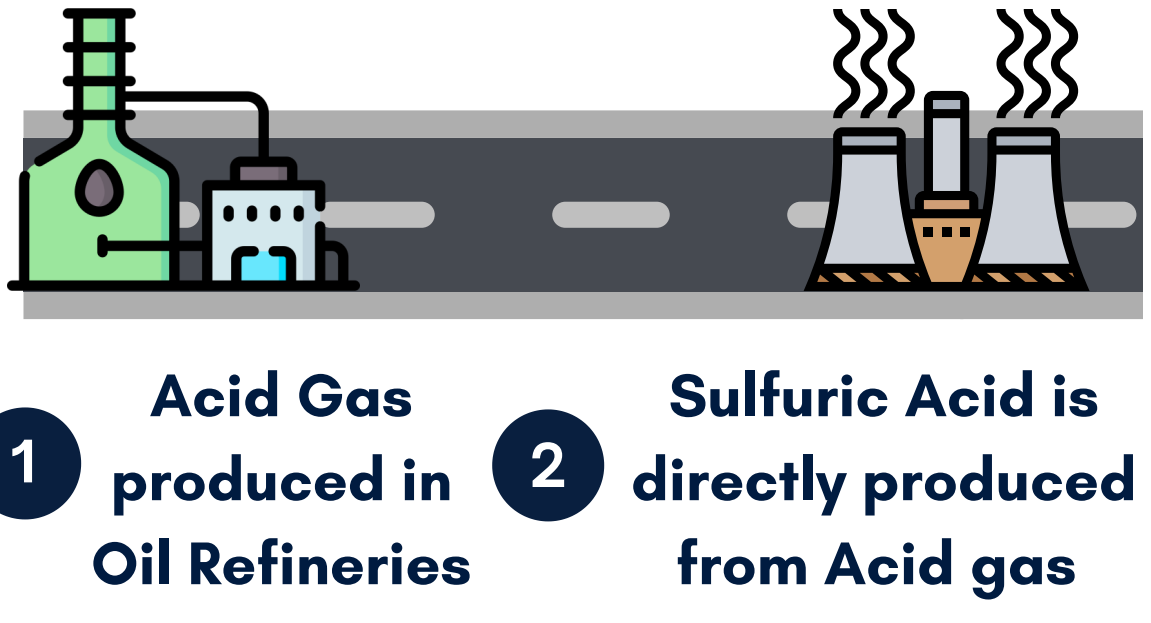
BACKGROUND



Conventional Process



Proposed Pathway



Benefits

- Circular Economy
- Energy Reduction
- Transportation Emission Reduction

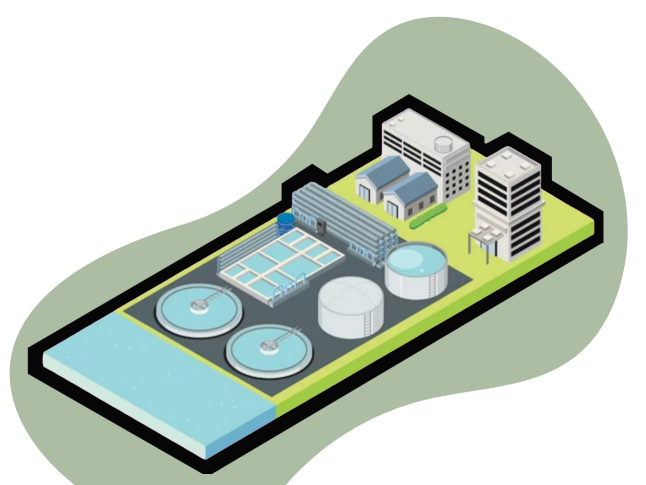
SOCIETAL NEEDS



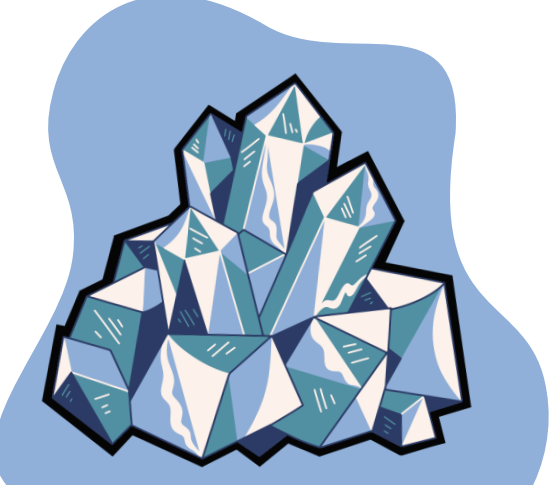
H₂SO₄ is a widely produced commodity chemical used in:



Fertilizer Production

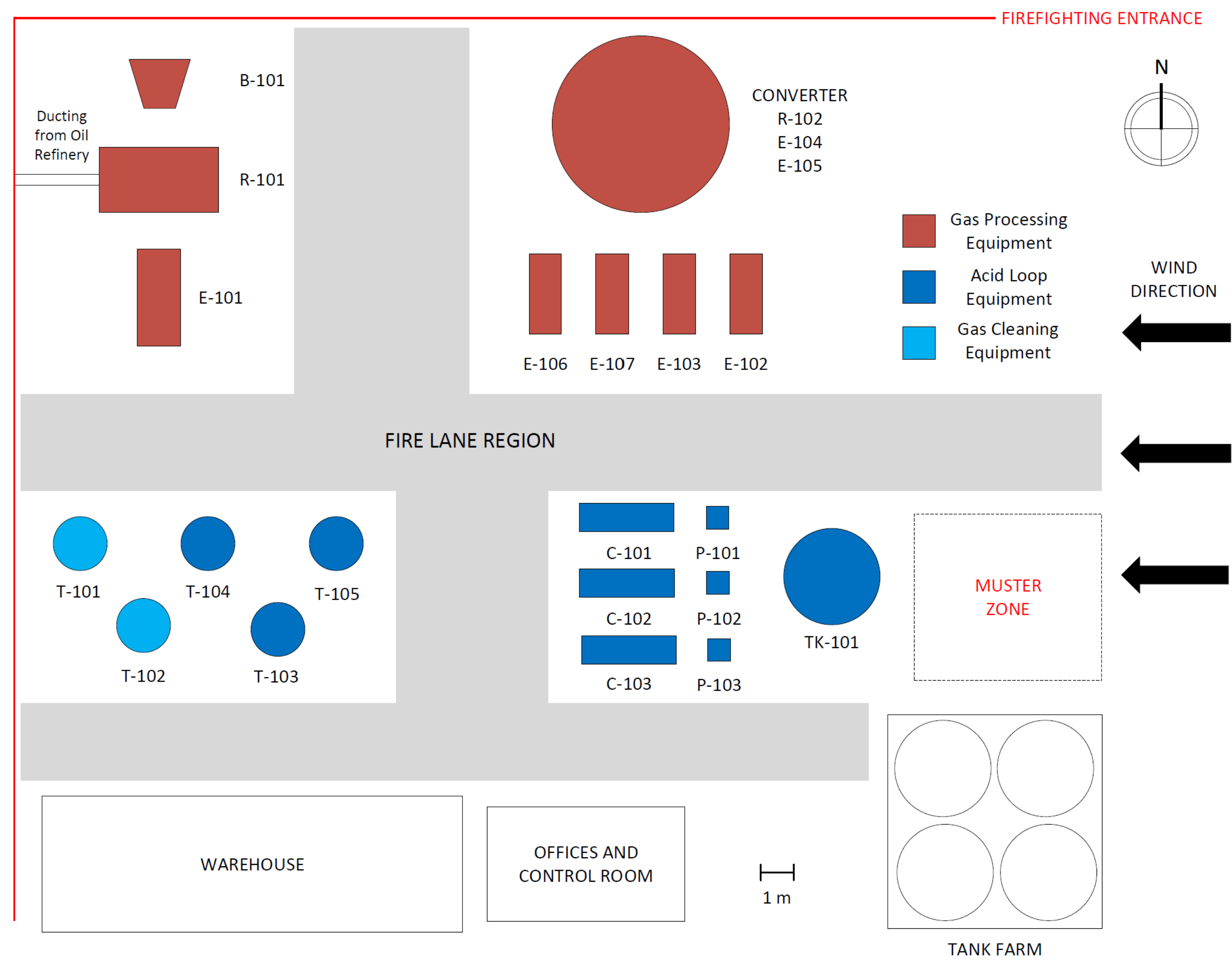


Contaminant Removal in Water Treatment Processes



Leaching in Mineral Processing

PLANT LAYOUT



PROCESS DESCRIPTION

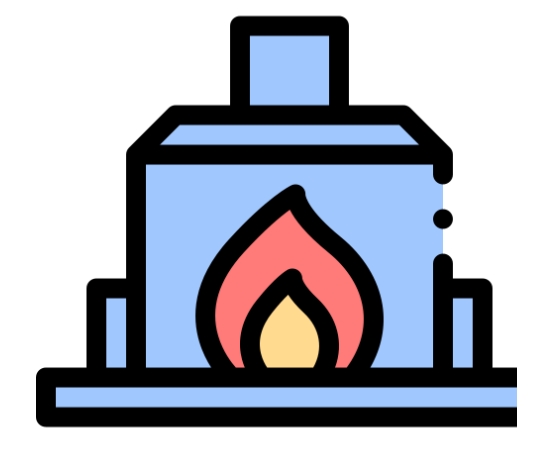


Location: Edmonton, AB

Plant Capacity: 109,500 tonnes per year

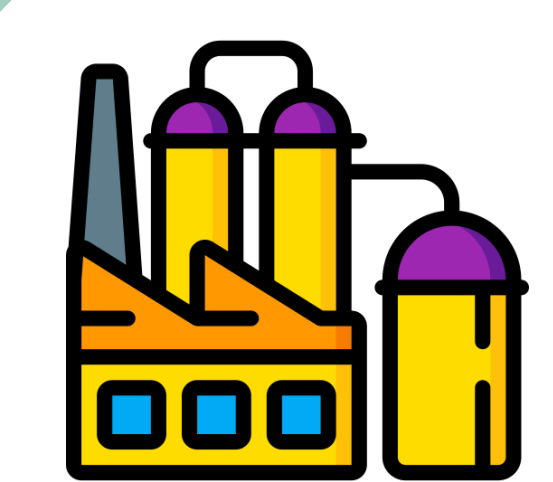
Acid Gas Treated: 53,400 tonnes per year

Final Product Concentration: 98.5wt% H₂SO₄



Incinerator

H₂S in acid gas is **combusted** at 1000°C to produce SO₂ and H₂O



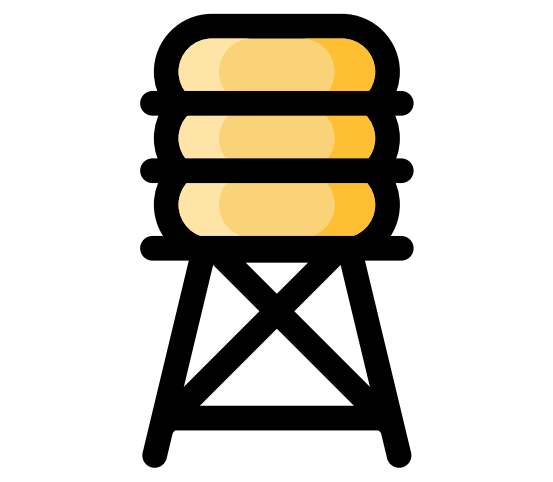
Gas Cleaning

H₂O is **removed** to **prevent acid formation** in downstream equipment



Converter

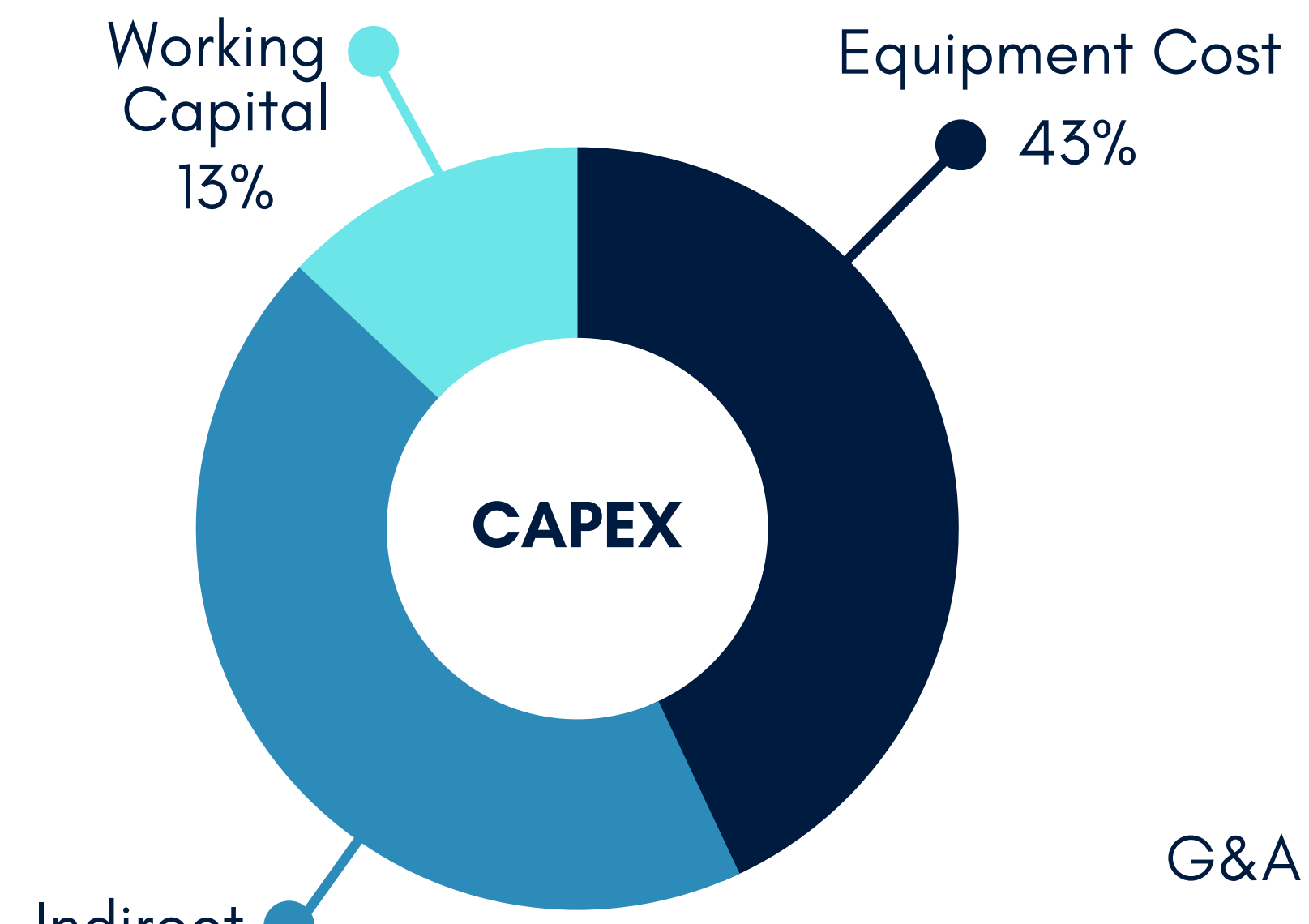
In the four catalyst beds, SO₂ is **oxidized** to form SO₃ at 450°C



Acid Tower

SO₃ **reacts** with water in the acid solution to **form H₂SO₄**

ECONOMIC ANALYSIS



CAPEX Value: \$22.6M

OPEX Value: \$3.1M

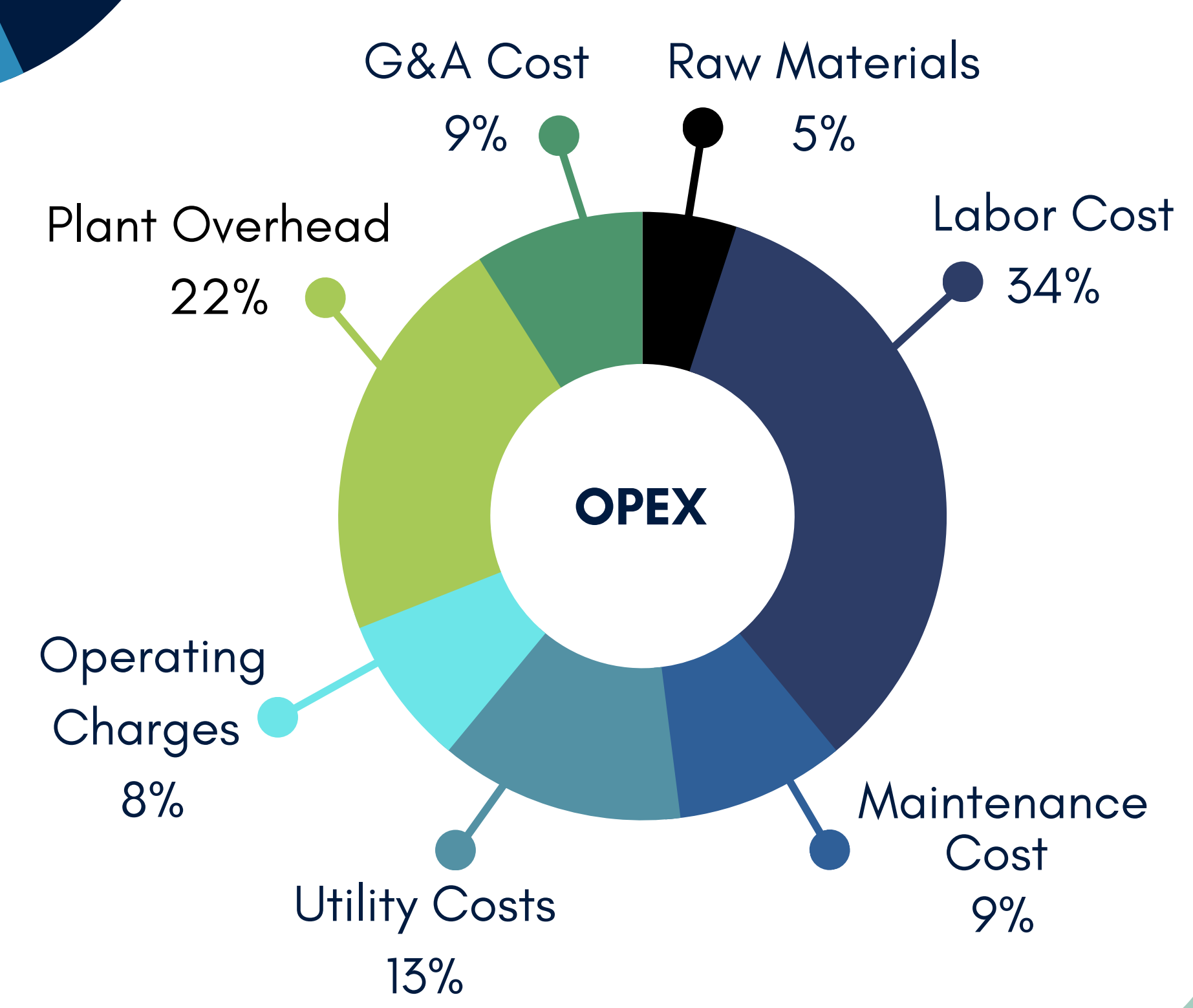
Payback: 4.5 Years

NPW: \$89M

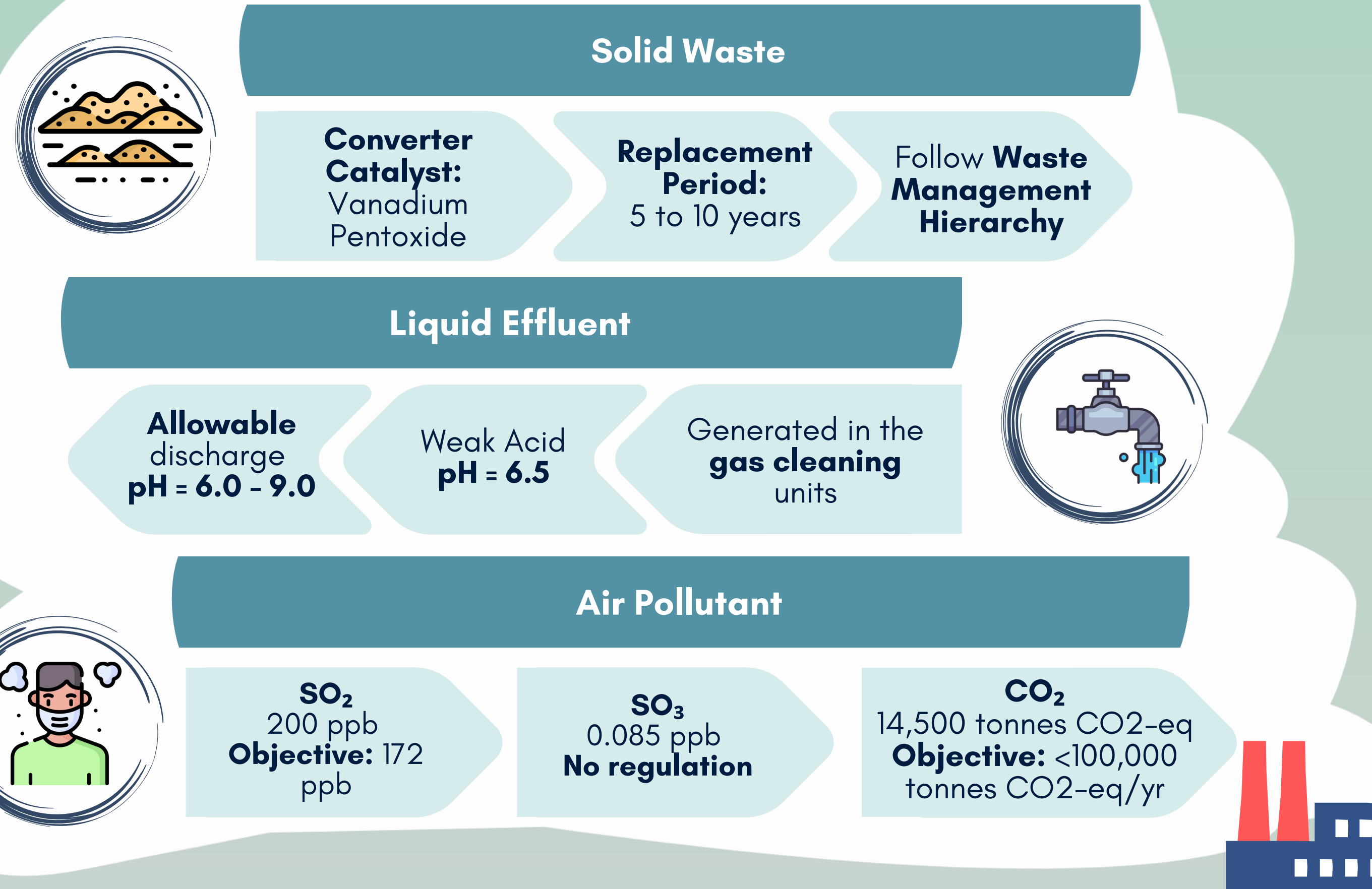
IRR: 13%

Inflation: 2%

Alberta Tax: 23%



ENVIRONMENTAL ANALYSIS



ACKNOWLEDGEMENT



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