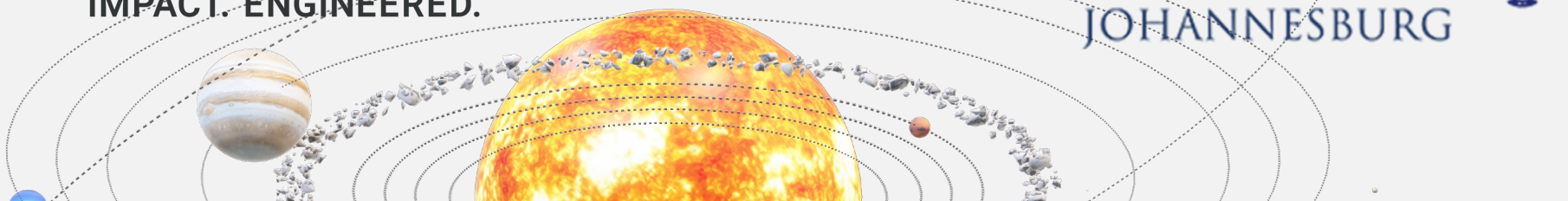
The perceptions of relevant stakeholders in the use of Artificial Photosynthesis

Emash Mohlaba

Quantity Surveyor - Zutari

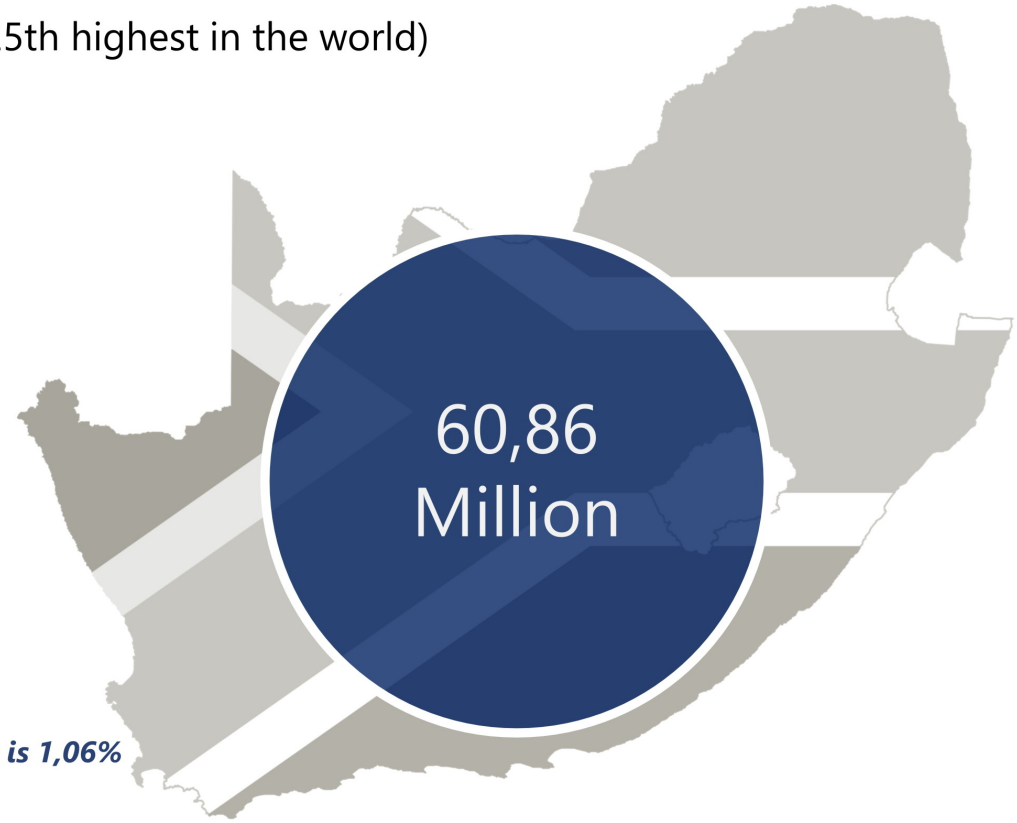
BSc Hons QS – Wits University



Population

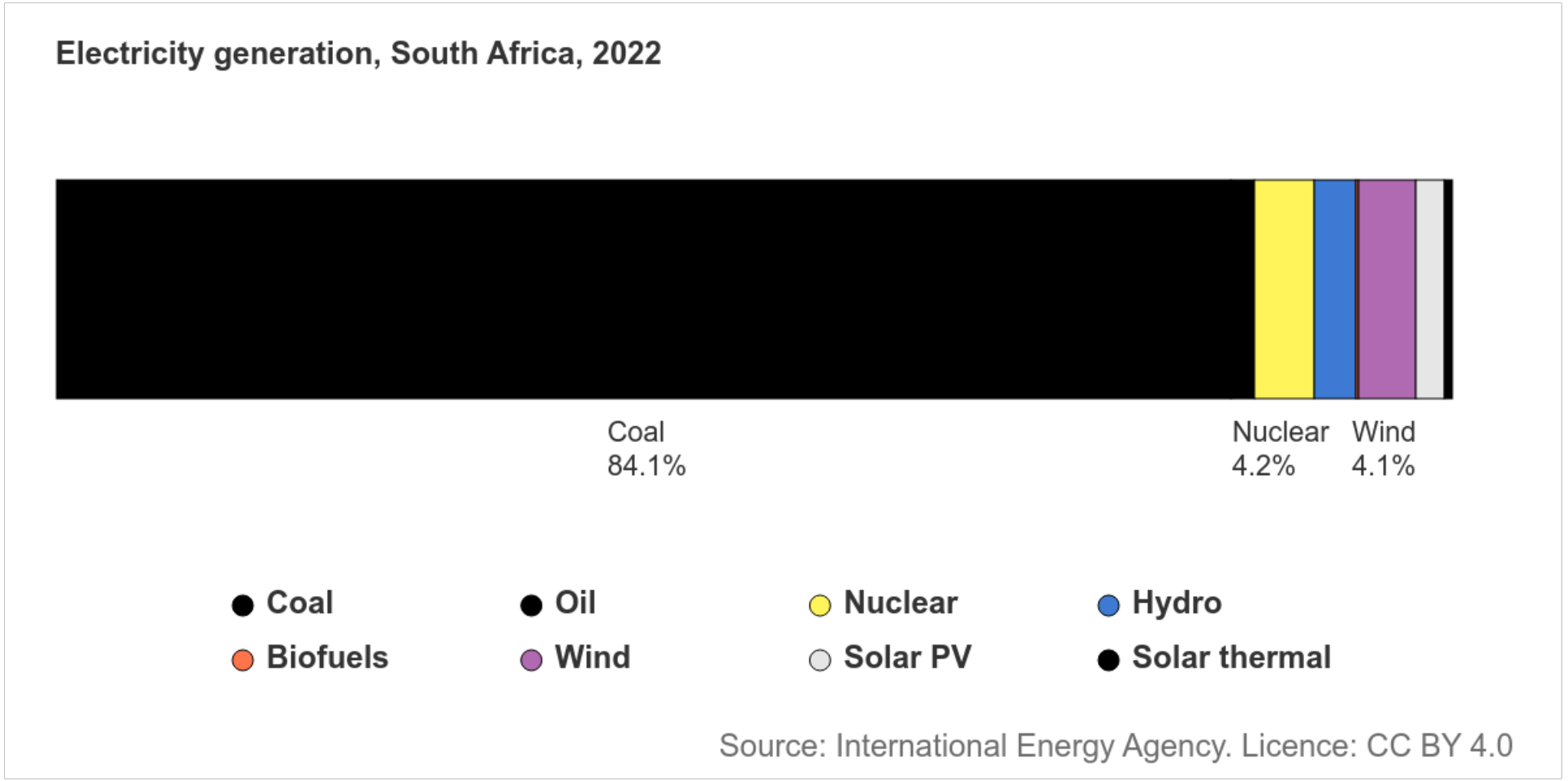
As World population reaches 8 Billion, South Africa's population stands at

60,86 Million (25th highest in the world)



annual rate of growth is 1,06%

Current Energy Sources



Consumption & Emissions

South Africa

- 42% of Africa's CO_2 emissions
- Eskom's energy and heat prod. accounts for 38.1% total emissions
- 12th highest CO_2 emitter globally

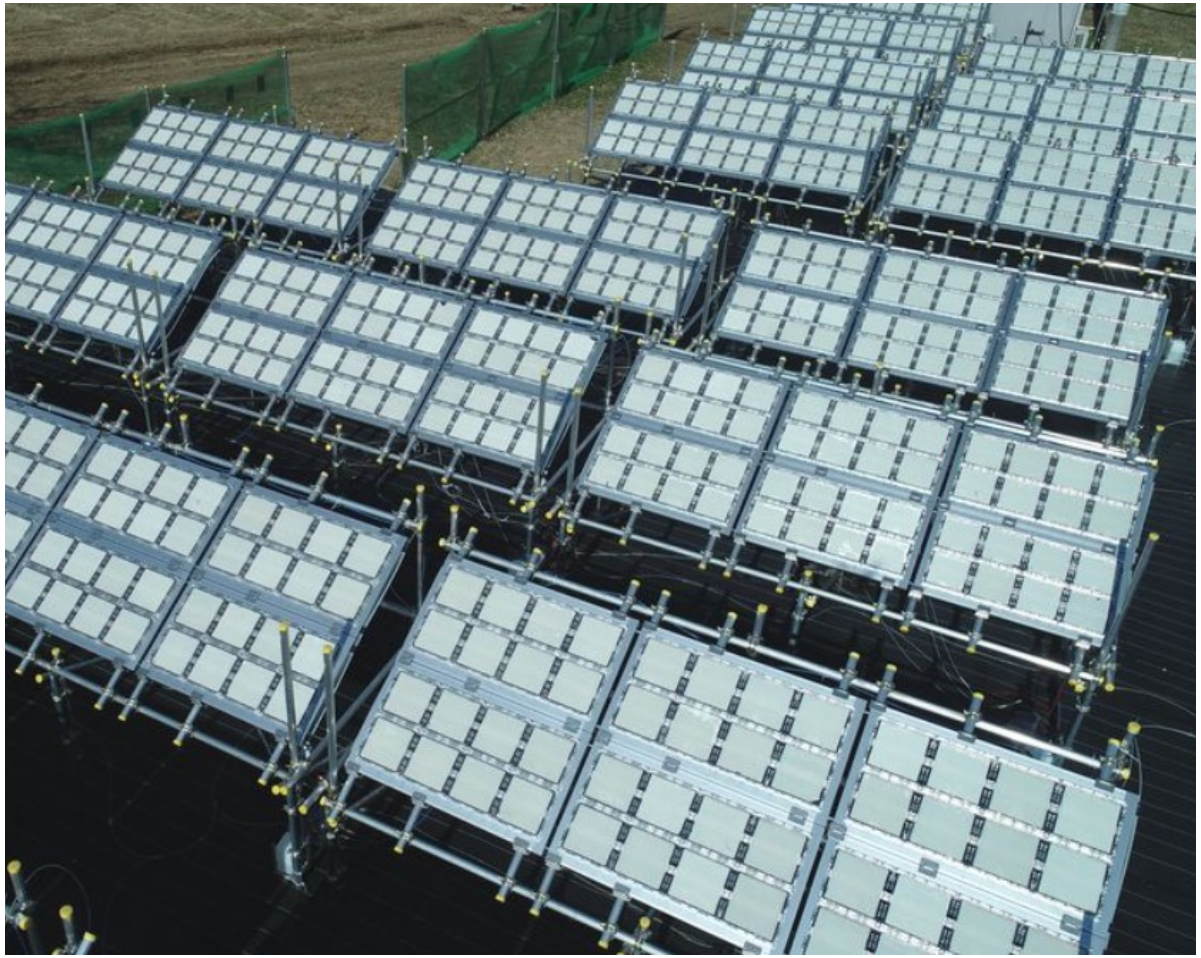
Global Construction Industry

- 36% of global energy consumption

Energy Challenges

Fossil Fuels	Renewable Energy
• Reliable and efficient • Existing infrastructure • Stable and portable **But** • Finite • Not scalable • Needs large storage facilities • Climate altering	• Clean, non-climate altering • Large scale infrastructure non existent • On-site – portability not needed • Infinite **But** • Not as efficient as fossil fuels • Not stable due to weather dependency • Storage limitations

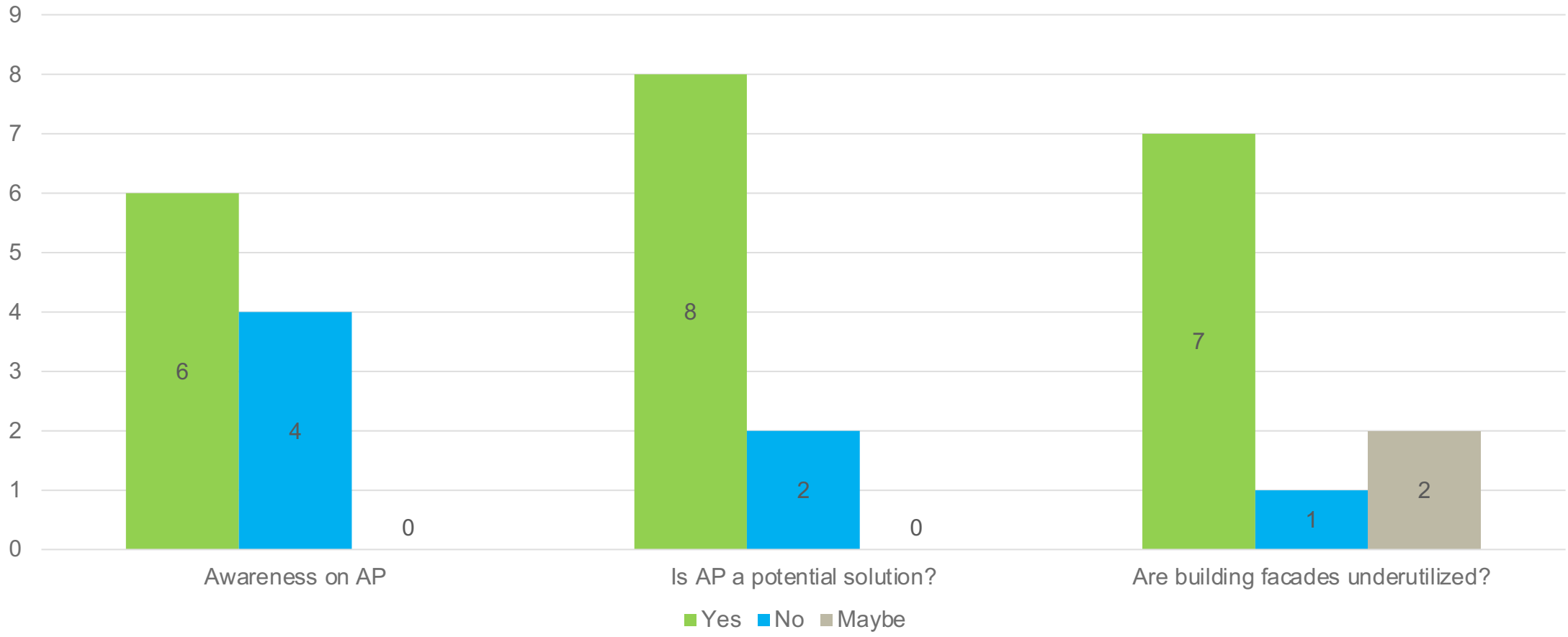
Artificial Photosynthesis (AP)



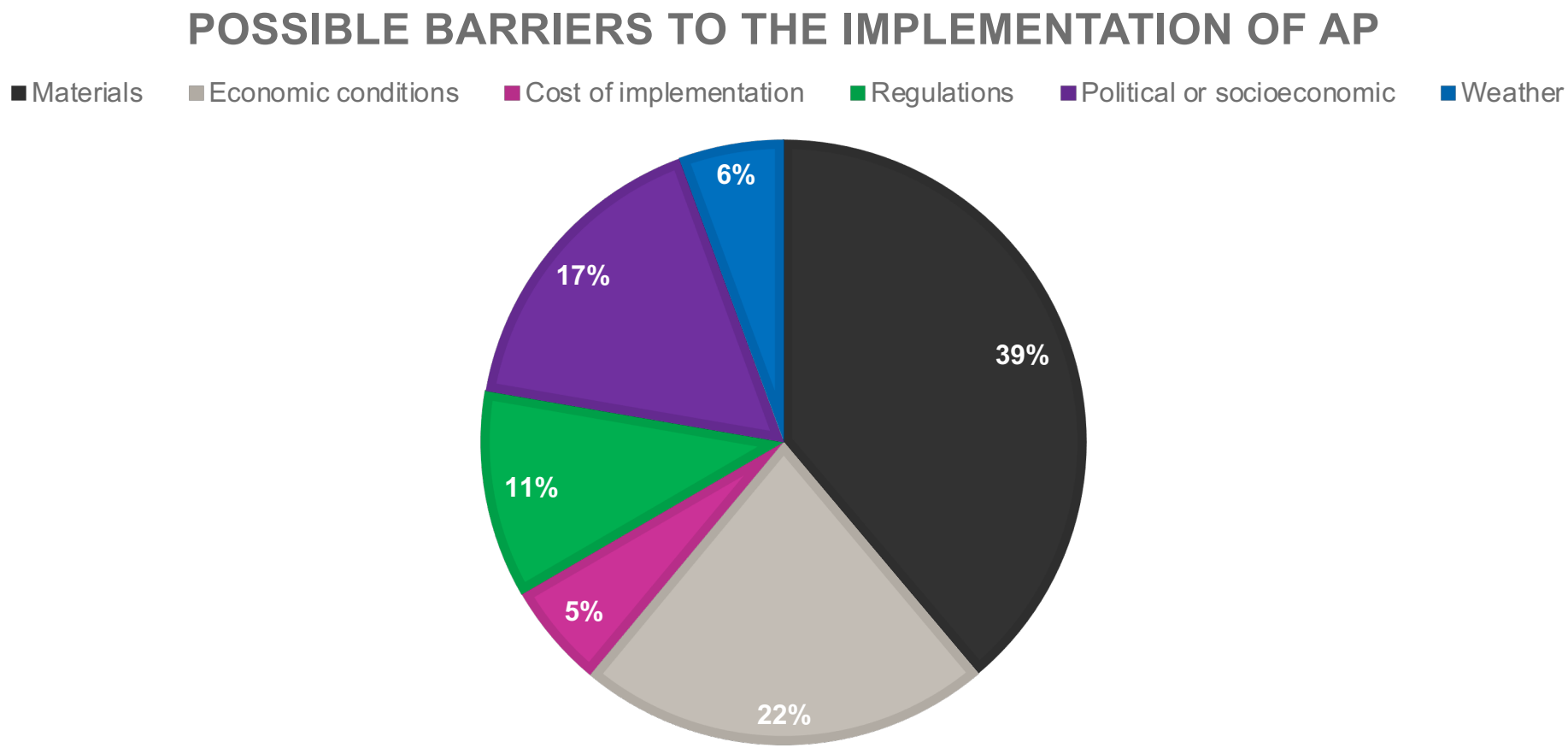
Source: New Energy and Industrial Technology Development Organization

- Biochemical process that mimics the process of natural photosynthesis to produce chemical fuels
- Produced chemical fuels are as energy dense as fossil fuels but not climate altering
- On the left: Photocatalytic panels experiment
- Less storage needed
- Scalable to smaller sizes
- Higher energy absorption and conversion rate
- Uses carbon capture device to capture CO2 from the atmosphere

Research Results



Research Results



Emash Mohlaba

QUANTITY SURVEYOR

E Emash.Mohlaba@zutari.com

T 0604532948

A Oxford Corner
32A Jellicoe Avenue,
Rosebank, Johannesburg,
2196