Annexure Two:

Historical background CSIR Pretoria: Origins

History of the research projects resulting in the biogas proposal.

The Council for Scientific and Industrial Research was established on 5th October 1945 in terms of the Scientific Research Council Act (Act 33 of 1945). Its mandate was outlined in terms of the Scientific Research Council Act of 1988 (as amended). The campus is situated off Meiring Naude Road, Pretoria.

Land was acquired for the development of a campus in 1945 on open plan east of Pretoria. It has been in a constant state of development and modification since that time. None of the earlier buildings appear to have survived from that period.

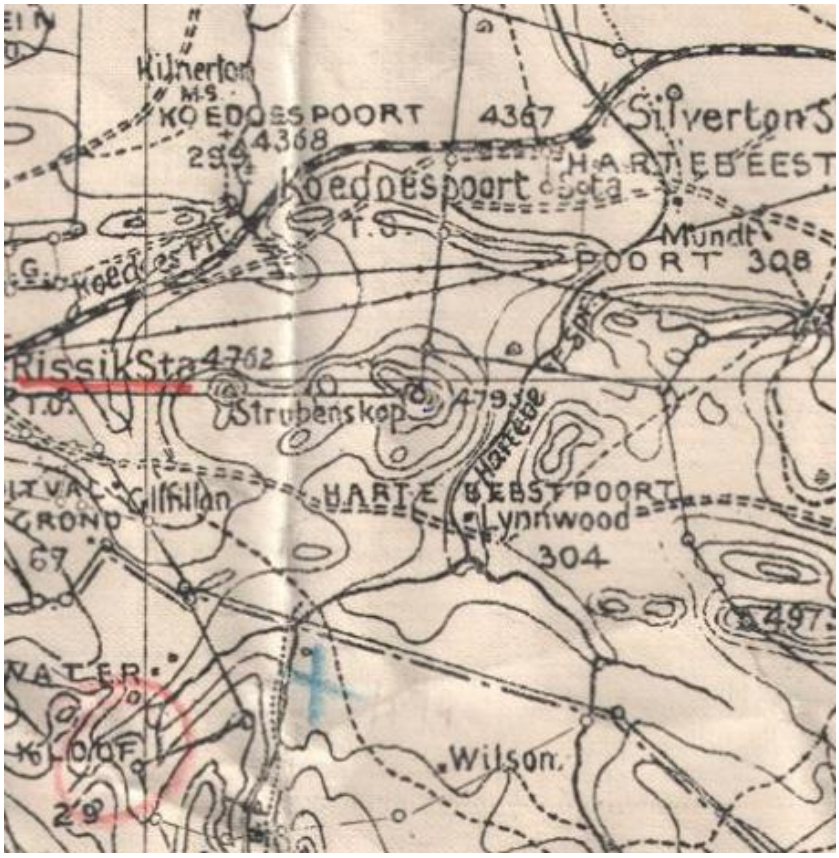

Fig 1. Gauteng 1905 with the Scientia site situated between Haartbeespoort and Koedoespoort. The kopjie named Strubenskop is a reference to Frank Strubens who acquired many farms in the area for prospecting reasons.

The site consisted of land consolidated under an amended title in 1989. of the site consists of farmland formerly known as Koedoespoort No 325, Portion 42 of the farm Haartbeespoort and portion of the arm Mopani 342. Part of this land had previously been acquired by Frank Strubens

for prospecting reasons. The largest portion of the site consisting of 168 ha the farm Scientia 416. The site became Farm Scientia 627 in 1989. The site is owned by the CSIR [1]

It's first president was Dr Basil Schonland, who achieved success in the development of radar in South Africa. The CSIR has undertaken pioneering research in the development of many fields of scientific endeavour including the development of the tellurometer for land surveying, the heavy metal simulator for road testing and contributions to lithium battery research. It has also achieved successes in aerodynamic research scientific botanical studies. One of its current foci is research into renewable energy sources.

The object of the CSIR is the fostering of "multi-disciplinary research and technological innovation". In 2016 it launched a biomanufacturing industry development which is to include a bio-refinery.[2]It is committed to supporting a green and sustainable economy. This includes the development of on-site biogas production.

The CSIR has continued to provide pioneering research and scientific development. The challenge is how to incorporate renewables in energy systems one which the CSIR is investigating within its own campus. The shift to renewable energy is a gradual process and to minimize the risk of costs and grid instability, the incorporation of sources such as solar photovoltaic (PV), wind and biogas are carefully planned. An integrated system will require cost-effective components and an optimal regime to dispatch different sources at different times

Another CSIR study aims to create an integrated energy resource plan for the campus, similar to what was done for other research arms of government. It takes into account all possible energy generation sources such as PV, wind and biogas to determine the least-cost generation mix, while taking into account demand-side options like flexible load, battery storage and electric vehicles. This model serves as a blueprint of what can be applied to other campuses, institutions and municipalities to assess future energy systems of different sizes. Initial results have been generated and the model was used as a basis for drafting a CSIR Pretoria campus integrated resource plan for the next five years.

Several research projects flowed from three solar PV plants that were installed on the CSIR's campus in Pretoria from 2015 to 2017. The three solar PV plants have a 1 008-kW power output and marked the start of a journey to an energy-autonomous CSIR campus. The current heritage submission arises out of the Biogas proposal with contains environmental (and thereby heritage) triggers in terms of S 38(8).

Reference:

The CSIR website 2018

Certificate of Amended Title 39874/92

[1] T64773/089

[2] CSIR Annual Report 2017 Foreword