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Live, waste and fuel: a waste to energy plant in between Modderfonteins natural, industrial heritage and its future expansion

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South Africa is currently going through an energy crisis; our energy infrastructures are being utilised into full capacity. This tells me that infrastructures will be questioned and its ability to meet societal demands are a matter of concern. This crisis is linked to an increasing demand of the energy service that is linked back to population urban growths. This is informed by a larger issue and that is the global issue of climate change; this environmental phenomenon is forcing our position to reconsider primitive industrial systems, unfortunately for the sake of urban and environmental spaces, this crisis as a physical effect.

However, there is one thing that stands out from this crisis of climate change and that is waste. This component was once regarded as the output of industries, it had no societal value and because we dwell in spaces of old constructs. We are forced to value consumption more than the production of waste. What if we shifted our thinking and placed a commodity value on waste? Landfills are a testament to our waste outputs and more so the proof that waste is renewable as it is always available in every Industry. If we can manage our waste for the purpose of generating energy, this will be a contribution towards sustainability and the bigger issues of climate change. The idea of sustainability must be mutually important to society.

This thesis proposes the design of a waste to energy plant system in Modderfontein. The design is linked to the contextual landscapes of Modderfontein and these are mapped as the natural landscape, industrial landscape and the growing housing landscape. The logistics of waste collection are synchronised to the local community of Modderfontein and the Landfills in Johannesburg. This means that through this better system we can transpire shared values and beliefs of sustainability at a communal scale whilst significantly implying a notion of sustainable and better energy infrastructure. We should question existing energy infrastructure and existing systems; in particular, the spatial qualities that state owned facilities provide. We need a better spatial environment for public infrastructure, a space where the industrial, natural and the human component can coexist through Architecture. Can we LIVE, WASTE and FUEL all in one Architectural system?