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A JUST ENERGY TRANSITION ("JET") FOR SOUTH AFRICA

The solar water geyser roll out, Polokwane case study

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1. Introduction of Solar Water Geyser Programme

- The White Paper on Energy Policy for South Africa (1998)
- National Solar Water Heater Programme (NSWGP) contributes towards the achievement of the country's socio-economic, electricity demand and cushioning the poor on electricity bills, greenhouse gas (GHG) emissions reduction
- In 2014, the Department approached cabinet to note the revised NSWGP
- In 2015, the Department published a tender for manufacturing, supply, delivery and storage of the solar geysers from which twelve (12) suppliers were appointed for a period of three years to manufacture and store the geysers at their premises
- A total of 87 206 baseline systems were procured.

Introduction of Solar Water Geyser Programme Continue

- Polokwane municipality is located in Limpopo Province of the Republic of South Africa, the only municipality from the province participating and the municipality who received the highest (10 000) solar water geysers
- The municipality received a further 6000 units after a successful implementation of the first phase making a total of 16 000 solar water geysers received
- Polokwane municipality applied for 16 000 units initially in 2015, considering growth, now is more
- Council approved that low cost and/or indigent houses in the western side of the city and Seshego be considered in wards 8, 11, 12, 13, 14, 17, 19 and 37.

2. Request for proposal

- On the 26th of August 2016, the department of Mineral resources and energy circulated a Framework Agreement to several municipalities who responded to the request for proposal issued in 2012
- Main condition was that municipalities should obtain council approvals to participate
- A total of 87 206 baseline systems were procured and stored at manufacturing facilities
- DMRE paid for storage

3. Allocations

Municipality	Province	Quantity
JB Marks	North West	5000
Mafikeng	North West	5000
City of Matlosana	North West	5000
Bitou	Western Cape	3000
City of Cape Town	Western Cape	5000
Swartland	Western Cape	2000
Cape Agulhas	Western Cape	2000
Matzikama	Western Cape	2000
Mossel Bay	Western Cape	2000
Sol Plaatjie	Northern Cape	6000
Emthanjeni	Northern Cape	4000
Polokwane	Limpopo	10 000
Ethekwini	Kwazulu Natal	6000
Elundini	Kwazulu Natal	5000
Mpofana	Kwazulu Natal	5000
Makana	Eastern Cape	6000
Ndlambe	Eastern Cape	4000
Nelson Mandela Bay	Eastern Cape	200
The City of Tshwane	Gauteng	5000
Ekurhuleni	Gauteng	5000

4. Conditions and Responsibilities

Municipalities

- roof structures to sustain the weight
- 24/7 good quality water
- low income owners
- newly proclaimed residential areas
- no racial, political, or ethnical selection
- installer assistances
- UIF contributors

DMRE

- the right to suspend or terminate the roll out
- appoint Technical Feasibility Assessors
- installer companies
- Installer assistants training companies
- project managers (CEF)
- quality assurance personnel

5. Storage and Deliveries

- municipality was expected to provide storage facilities
- storage should be fully secured with cameras and intruder alarms
- security personnel
- municipality and Department had to provide staff for receiving and record keeping
- Polokwane municipality received two types of Geysers, the tubular ones (1500) manufactured by company A, and flat ones (8500) manufactured by company B
- Type A were not manufactured as specified and had no water mixers and were supplied with plastic valves(pending case). No water pipes
- valves could not sustain the hot water pressure and some of it burst resulting in five incidents where beneficiaries and installer getting burnt from the hot water.

6. Types of Geysers received

7. Installation challenge

Plastic taps that overheated and went loose

Geyser damaged after claiming favouritism

8. DMRE Responsibility

- Two training service provider to train 160 out of 304 total installer assistances during phase one. In-class theory completed and practical was part of the physical installations
- Three installer companies to install 3684 solar water geyser units
- One Technical Feasibility Assessors did evaluate households and indicated challenges where water was at corner stand and some households had asbestos roofs that cannot sustain weight
- Two Community liaison offices from affected wards
- Quality assurance person
- One storeman responsible to release material from storage facilities

9. Municipal Responsibilities

- Storage
- Provided list of students
- List of beneficiaries
- Area of installations (wards)
- Public participation – Council, Municipal manager, MMC Energy, affected wards and their councillors, IDP meetings,
- Monthly reports

10. Training

Product specific training by manufacture

- Installers(3 from each)
- municipal staff (6)
- DMRE staff (3)
- Project Manager (2)
- Quality assurance

11. Lesson learned

- Thorough public participation is required before implementing any project to the community
- Exemplary installation at manufacture's premises should have been installed to test compliance with specifications.
- Installation of un-used geysers could have been avoided by comparing the product with the specification, as well as accessories required.
- Municipalities will incur major storage costs if this project is not implemented within minimum time limit.
- Department transferred their storage costs to municipalities, preference is for municipalities to use own facilities
- Risk of theft at storage facilities
- Loss of geysers where record keeping is not managed well
- Storage place should be far from areas to be implemented
- Full roll-out from one ward to another will save installation costs
- The project is performance based and more geysers could be received if implementations are not disturbed.
- The municipality managed to secure additional 6000 units based on how they implemented phase one on the project and the ability to secure storage facility at no cost.

12. Challenges

- All citizens deserve to have the solar water geyser for cheaper lifestyle. The allocation is way less than the demand from communities.
- The water gets hot just after seven in the morning where the working class misses the advantage of hot water bath during winter.
- The supplied baseline systems that did not have some of the pipes. The manufacturer claimed that this was not part of the scope of work including water mixers that helps prevent overheating of the units.
- Some households had asbestos roof structure, which were excluded during phase 1 of installation, thus causing tension to the community.
- Delay of procuring the required material which were not supplied as contracted with DMRE
- Lack of water during the day in some of the areas due to maintenance
- In some instances, councillors provided list of houses which already had electrical geysers installed. This was discouraged and only houses without geysers were considered.
- Contractual disputes as a result of delays in payment of contractors, that is time taken to verify the installations before payment and proof of stipend paid to learners.
- Lack of water tap in/at the houses in some areas. Some individuals negotiated and supplied water point where the installer company had to go back and install geyser.
- The practical requirement to provide certificates by training service provider. Theory in class plus three weeks on site physical installation experience.
- Leaner assistances working from one ward to another. The community raised the concern and tried to enforce that installer assistances work in their own wards only. This was addressed and assistances required certain time from physical work.
- The legal engagement between DMRE and manufacture who manufactured geysers not as per specification.
- 5080 extra geysers delivered out of 6000, where a 1000 had to be collected from another province to Limpopo.

13 Conclusion

- The provisioning of solar water geysers improves the life of indigent customers and reduces the load and capacity which could be required when grid geysers get connected.
- Despite all the challenges, the project went well and a recommendation to supply additional 6000 solar water geysers was approved.
- Dedicated project managers are required for this massive rollout project if all outstanding 12 316 had to be all installed at the same time.

Thank You

Questions/Comments