

TABLE OF CONTENTS

- **Cape Town Solar Water Heater (SWH) Programme lessons learnt Document 4: Explanation of SWH Cost Benefit Analysis Spreadsheet**
Provides a description of how the City has estimated the Rand-value of electricity savings required to provide a financial benefit to households installing solar water heaters. (Sustainable Energy Africa for City of Cape Town, 2013)
- **Cape Town SWH Programme Lessons Learnt 05: SWH Market Size Assessment**
Provide as clear a picture as possible of the potential high pressure SWH market in Cape Town, given the data limitations in this area. Market data around potential SWH clients for the Cape Town SWH mass rollout programme comes from several sources ranging from 2001 to 2010. (Sustainable Energy Africa for City of Cape Town, 2013)
- **Cape Town SWH Programme Lessons Learnt 06: SWH Programme Legal Opinion**
A legal opinion on Cape Town's Residential SWH Accreditation Programme. (City of Cape Town, 2013)
- **Cape Town SWH Programme Lessons Learnt 07: SWH Programme Management Unit Motivation and Budget**
Owing to the size and complexity of Cape Town's Residential SWH Accreditation Programme, the establishment of a staffed and resourced Municipality Programme Management Unit (PMU) is necessary. The task of the PMU will be to ensure that the scheme is effectively implemented by the service provider/s, according to the Municipality's requirements, as specified in contracts with the service provider and that the roles for which the Municipality is responsible are adequately resourced. (2013)

Annexure II

Providing an attractive financial offer to the end user

One of the fundamental objectives of the City of Cape Town's solar water heater (SWH) programme is to provide end users with a product which saves them money from the first month that it is installed. In order to achieve this, a financial product must be structured which requires a lower repayment than the money saved from using the SWH in that month.

This report provides a description of how the City has estimated the Rand-value of electricity savings required to provide a financial benefit to households installing SWHs.

The description is provided:

- to assist the candidate service providers to calculate the monthly repayment figures that the SWH included in their proposals can achieve; and for comment because the analysis of the expected performance of proposed SWH is a key aspect of the market assessment

Scientific analysis of energy required to heat water in an electric geyser and keep it heated for the day

This first section looks into the energy required to heat a tank of water in a typical electric geyser, and keep it heated for the day. In order to do this, we need to use a value for the **volumetric specific heat capacity, (or specific heat for short)** of water and the **standing losses** of a typical geyser.

Specific heat of water

The specific heat of water is defined as the amount of energy (in Joules) required to raise 1 cubic centimetre of water 1 degree Kelvin. The specific heat of water at 25 degrees C is $4.1796 \text{ J/cm}^3 \cdot \text{K}$. This figure does not change significantly over the typical water heating range of 15-70 degrees C.

For the purposes of this analysis which is looking at electricity used to heat water in an electric geyser, it will be more beneficial to convert the specific heat value to a figure which reflects the amount of energy (in kWh) required to raise 1 litre of water one degree Kelvin.

This conversion calculation is shown below:

$$1\text{J}=0.0002777778\text{Wh}$$

$$1\text{cm}^3=1\text{ml}$$

$$1000\text{cm}^3=1\text{l}$$

Converting value for the specific heat of water from $\text{J/cm}^3 \cdot \text{K}$ to $\text{Wh/cm}^3 \cdot \text{K}$:

$$4.1796 * 0.0002777778 = 0.00116 \text{ Wh/cm}^3 \cdot \text{K}$$

Converting this to kWh/l.K requires a division of 1000 (to convert to kWh) and a division of 1000 (to convert to litres). These cancel each other out, and so the converted specific heat for water to use in our calculations is:

Specific heat of water = 0.00116 kWh/l.K

Standing losses in an electric geyser and a SWH

Even though an electric geyser is insulated, it does lose heat through its surface area over time. The rate of heat loss is a function of surface area, insulation level and the difference in water temperature to the ambient temperature around the geyser.

SABS standard SANS 151 specifies the following maximum 24 hour standing losses in kWh for an electric geyser and for a SWH. These are also the ratings on Kwikot™ geysers.

	Geyser size		
	150l	200l	300l
Average daily standing losses (electric geyser)	2.59	3.02	3.89
Average daily standing losses (SWH)	1.94	2.27	2.92
<i>All figures in kWh/day</i>			

Daily energy requirements to heat water and keep it heated

To ensure that all end users will benefit from the SWH programme, this needs to be a conservative analysis. Therefore the following assumptions have been made:

1. Ambient temperature of Cape Town's municipal water is 20 degrees C
2. Geyser thermostat set to 60 degrees C

Using the above assumptions and the specific heat of water, a table of daily electricity use per electric geyser per day can be achieved. Note that the conservative component for this analysis comes from a high municipal cold water temperature (20 degrees C) and a low thermostat temperature (60 degrees C). A greater differential between the two would require a larger daily energy input.

We will work through one calculation before presenting a summary table.

The electricity required to heat 150l of municipal water to 60 degrees is as follows:

Electricity required = Specific heat*amount of degrees raised*number of litres+ daily standing losses

$$=0.00116*40*150+2.59$$

$$=9.55\text{kWh per day}$$

The summary table of electric geyser energy usage is provided below. Usage patterns 1/6th lower than geyser capacity have also been included

	150l geyser		200l geyser		300l geyser	
	Daily hot water usage		Daily hot water usage		Daily hot water usage	
	150	125	200	166	300	250
Energy required/day (kWh) to heat water used	6.96	5.8	9.28	7.7024	13.92	11.6
Energy required/day to compensate for standing losses(kWh)	2.59	2.59	3.02	3.02	3.89	3.89
Total energy required/day (kWh)	9.55	8.39	12.30	10.72	17.81	15.49
Energy required/month (kWh)	290.48	255.20	374.13	326.14	541.72	471.15
Average monthly water heating cost	R 374.72	R 329.20	R 523.78	R 456.60	R 758.41	R 659.62

Solar water heater savings potential

The table above provides a scientifically calculated set of figures on which to base potential savings from installing a SWH.

In 2007, in the largest study of its kind in South Africa, SESSA and Eskom monitored the performance of 50 SWHs in Cape Town, Johannesburg and Pretoria, with and without timers installed over a period of 11 months (Sep 2006-July 2007). The results showed that on average a SWH with a timer required 42% of its energy to come from electricity and 58% from the sun over this period. This study showed similar savings for correctly sized systems in Cape Town and Johannesburg. However, of interest is the fact that the best performing set of SWH systems in the study used 28% from electricity and 72% from the sun. As the electricity data was taken directly from the heating element usage, it **includes** standing losses. Therefore any assumption around potential savings from a SWH using this information should be based on total water heating energy (bringing water up to required heat and keeping it there).

It is the intention of the Cape Town SWH programme to optimally match participants' water usage patterns to SWH size, thereby gaining the best possible benefit from the installations. However, it is impossible to exactly match a SWH capacity to daily hot water usage in a household, and conservatively, the system may not perform optimally. Individual household hot water usage patterns vary widely (see Davis, 2011 Fig 1). Actual savings achieved will therefore vary and be affected by the size of the system chosen, the use of the timer and household hot water usage patterns.

Therefore, when calculating the energy saving potential of a SWH the City has settled on a solar efficiency figure of 60% and a consumption pattern of 5/6^{ths} of SWH capacity. When calculating the cost of energy saving, 2012/13 electricity tariffs excluding VAT for mid to high income residential have been used (R1.40 per kWh for 300l systems (savings in block 4), R 1.40 for 200l systems (savings in block 4) and R1.29 for 150l systems – (savings in a combination of block 3 (R1.18) and block 4 (R1.40) tariffs). The table below indicates the optimal (red) and conservative (yellow) energy and rand saving values from the installed units.

	150l SWH		200l SWH		300l SWH	
	Daily hot water usage		Daily hot water usage		Daily hot water usage	
	Optimal	Conservative	Optimal	Conservative	Optimal	Conservative
	150	125	200	166	300	250
Efficiency of SWH	70%	60%	70%	60%	70%	60%
Energy required/day (kWh) to heat water used	2.865	3.356	3.69	4.28896	5.343	6.196
Energy required/month (kWh)	87.14	102.08	112.24	130.46	162.52	188.46
Average monthly water heating cost	R 110.96	R 129.98	R 142.91	R 166.11	R 206.93	R 239.97
Expected monthly savings from SWH	R 263.76	R 199.23	R 380.86	R 290.49	R 551.48	R 419.65

The conservative monthly saving figures in the last row of the table are the ones being used by the City as an indicator for the maximum monthly repayment for SWHs in the City of Cape Town. If this repayment is met, the City has a high degree of confidence that the SWH will be saving the end user money from month one after installation.

Cost benefit analysis spreadsheet.

A spreadsheet has been provided assist the candidate service providers to calculate the monthly repayment figures that the SWH included in their proposals can achieve. This spreadsheet has been set up to model 150l, 200l and 300l systems. For each SWH system the following variables can be input:

1. Installation and maintenance costs
 - i. Cost of installed SWH
 - ii. Eskom rebate for system
 - iii. Once off maintenance cost per system
 - iv. Carbon income for installation (if applicable)
2. Water usage assumptions
 - i. Daily water usage
 - ii. Tank size
3. Financing assumptions
 - i. Finance rate
 - ii. Finance period (years)
 - iii. Discount rate
 - iv. Electricity price
 - v. Predicted electricity increases

Output from the spreadsheet include:

1. Energy Savings
 - i. Electric geyser energy use per month
 - ii. SWH energy use per month
 - iii. Energy savings from SWH per month
2. Financial savings
 - i. Electric geyser running cost per month
 - ii. SWH running cost per month
 - iii. Savings from SWH per month
 - iv. Monthly repayment if financed

Points 2.iii and 2.iv are the critical values for this exercise, with the latter needing to be lower than the former.

This spreadsheet will be discussed in more detail at the compulsory meeting to be held 2 weeks after the issuing of the RfP

City of Cape Town SWH mass rollout market assessment report

Background

This report was prepared by Sustainable Energy Africa at the request of the City of Cape Town expressly to address issues raised in the lead up to the mission of potential Bulk funders for the City Bulk SWH roll-out project and also to address issues raised during the mission on the 7, 8 May 2102.

Introduction

This report has been created to provide as clear a picture as possible of the potential high pressure SWH market in Cape Town, given the data limitations in this area. Market data around potential SWH clients for the Cape Town SWH mass rollout programme comes from several sources ranging from 2001 to 2010.

These sources include:

1. 2001 census data by (electoral) ward (105 wards in total) including
 - a. Number of households per ward
 - b. Number of households per ward above indigent level (>R19200pa in 2001, >R40 000pa in 2012 terms)
 - c. Number of rented houses per ward
 - d. Number of standalone houses and number of flats per ward
2. 2009 AMPS data on number of residential electric geysers in Cape Town
3. 2009/10 data on residential electricity sales in City of Cape Town Electricity department operated areas
4. 2001 data on residential electricity sales in Eskom operated areas of Cape Town

Key market analysis points coming out of these data sources are summarised below:

Broad market assessment

(Note that in all cases, where there are ranges, the conservative estimate is used: i.e. the estimate that will yield a lower figure for the market estimate)

The 2001 census data for Cape Town indicated 777 393 households in Cape Town, including informal dwellings. More importantly, the household data provided by the census is broken down into household income brackets. The first bracket in the survey (R0-R19 200 pa), applies to households which then qualified for free low income housing. It can be assumed that the majority of informal settlements and low income households fall into this category. All households above this income level could potentially have an electric geyser, and as such would benefit from a SWH. The household breakdown by income bracket (2001 levels) is indicated below

CITY OF CAPE TOWN		
HOUSEHOLD INCOME (PER ANNUM)	Number	%
0 - R19 200	302 141	38.87%
R19 201 - R76 800	264 594	34.04%
R76 801 - R307 200	177 124	22.78%
R307 201 - R1 228 800	28 617	3.68%
R1 228 801 and more	4 917	0.63%
Total	777 393	100.00%

Source: City of Cape Town Census data 2001

All Cape Town households above indigent level in 2001 total **475 252**. These have a high probability of having an electric geyser.

2009 AMPS data backs up the assumption made above, stating that **478 577** households had electric geysers in Cape Town.

Given

- i. the strong correlation between these data sets,
- ii. the fact that Cape Town household growth has not been significant in this market over the past 10 years

We therefore assume, for later calculation, that there are 475 000 houses with electricity geysers in Cape Town. This can be summarised as the absolute efficient water heating market potential in Cape town.

While this figure provides the overall market potential, it needs to be tempered by the following constraints:

- i. Some households do not use sufficient hot water to make the additional expense of a SWH financially justifiable
- ii. Some houses are rented, and selling SWHs to these households, whilst not impossible, will prove initially difficult
- iii. It is difficult to use SWHs in sectional title blocks of flats

Analysis of the above constraints is provided below:

Number of households using sufficient hot water levels to make a SWH financially justifiable

A solar water heater's value will be optimised if the volume of the tank is utilised by the household on a daily basis. The smallest volume high pressure SWHs are typically 150l. Therefore households which use 150l per day and upwards will definitely benefit from the SWH programme.

City modelling information based on a mass rollout scenario indicates that if a household with a 150l SWH uses from 125l per day, the unit will be financially beneficial.

Therefore the following is an energy analysis of a household that would use 125l of hot water per day, as the lowest entry point for the SWH programme.

The energy required for an electric geyser to provide 125l of 60 degree hot water per month is approximately 200kWh. A table showing this calculation is provided below.

Geyser size	150.00
Average hot water consumption/houhold/day	125.00
Average daily losses (kWh/l/day)	0.00587
Specific heat of water	0.00116
Average Water Temp	20.00
Thermostat setting	60.00
Energy required/day (kWh)	6.68
Energy required/month (kWh)	203.18

Note: Daily loss calculation as follows: Specific heat of water (.00116)*number of liters (125)*temperature differential (40 degrees – assuming city supplied water temp is 20 degrees)+daily losses.

Water heating can typically be up to 40-50% of the full electricity bill in mid income households.

Therefore houses in the range of 400-500kWh per month will typically use 125l or more of hot water per day. An acceptable cut off point would be **450kWh per month**.

An analysis of the residential electricity usage patterns for the residential sector above indigent level yields the following results:

- i. Both the City of Cape Town and Eskom distribute to this sector within the city boundaries
- ii. The City of Cape Town Electricity Department distribution area user summary shows some **291 904** households using **above 450kWh pm** (ie not qualifying for free basic electricity or FBE) in 2009/10. For the purposes of this study, it is assumed that those who qualify for FBE are either indigent and do not possess an electric geyser, or have an electric geyser and do not use sufficient hot water to financially justify a SWH installation

SUMMARY OF RESIDENTIAL ELECTRICITY SALES FOR THE YEAR 2009/2010				
Tariff	Consumers	Energy (kWh)	Average energy use per month (kWh)	Income per year
Total above 600kWh/m	123 428	1 730 929 757	1 169	R 1 944 742 138
Total below 600 kWh/m (no FBE)	168 476	1 055 545 500	522	R 1 129 433 685
Grand Total	291 904	2 786 475 258	795	R 3 074 175 823

- iii. 2001 data for Eskom electricity distribution areas in the City show some **45 000** households consuming on average 852kWh/month, a level of electricity where it is reasonable to assume that they possess an electric geyser.

Combining this data there are some **336 904** households in Cape Town with electric geysers which consume sufficient electricity to make installation of a SWH financially viable.

Number of rented households in the Cape Town

The 2001 census data indicates some **178 353** rented households in Cape Town. Of these 48 033 are informal and formal backyard dwellings (assumed to be rental stock) resulting in 130 320 rented formal households. It should be noted that some of these rental households will not have electric geysers.

Number of sectional title flats in Cape Town

The 2001 census data indicates some **75 163** flats in Cape Town

Adjusted estimate of the Cape Town SWH market

Assumptions need to be made to come up with a revised figure of the potential SWH market. These are:

- i. Of the 550 149 formal households in Cape Town, 130 320 are rented (2001 CT census data). This means that 419 829 formal households are owner occupied. We assume that formal household rental is evenly spread across Cape Town.
 - a. Therefore households with geysers which are owner occupied are $419829/550149*475000=362\ 481$
 - b. Assuming all flats have electric geysers. The number of flats which are owner occupied are $419829/550149*75163=57\ 358$. (This is a conservative estimate for the purposes of calculating the market)
- ii. Therefore the number of owner occupied free standing houses (ie SWH compatible) is **305 122**.
- iii. The amount of households using sufficient hot water to financially justify a SWH is therefore $336904/475000*305122=216\ 414$

A summary table of the above market analysis is presented below:

Housing Category in Cape Town	Number of Houses
Formal Houses	550 149
Owner occupied formal houses	419 829
Owner occupied formal houses with geysers	362 481
Owner occupied free standing formal houses with geysers	305 122
Owner occupied free standing households using 450kWh and above per month with geysers. (Expected use of 125l of hot water per day and above)	216 414

It should be noted that there may be households in the excluded categories (rental, lower electricity use, blocks of flats) that might well access the SWH programme. However, to maintain a conservative estimate with the data used, they are completely excluded from the total potential target market.

Finalisation of effective and critical target market figures for the CCT SWH programme

The analysis above provides a figure for the **total potential target market** for the CCT SWH programme.

However, it is unlikely that any programme, no matter how effective, will achieve a 100% rollout to the potential market. It is therefore necessary to bring this figure down to an **effective target market** for the CCT SWH programme.

It is also necessary to assess the **critical mass roll out rate** required to ensure that economies of scale can sufficiently bring prices down to competitive levels. These two markets are discussed in more detail below.

Total effective target market

This is the number of households in the total potential target market that it is estimated will make use of an effective SWH programme. This is a rough estimate. The upper bound is obviously the total potential target market: it is expected that not every household in this market will choose to receive a SWH from the scheme in the 5-year period. However, the scheme will offer a significant financial benefit to all of these 216 000 households, even in 2012 and this benefit will increase as the price of electricity increases significantly. It is therefore plausible that a large proportion of these households will choose a SWH. To maintain a conservative *estimate the City has decided to use a figure of two-thirds of these households accepting a SWH from the scheme over a 5 year period which equate to 144,000 households.*

The scheme does not aim to crowd all other players out of the market¹, so other suppliers will continue to serve the market.

Critical-mass roll-out rate

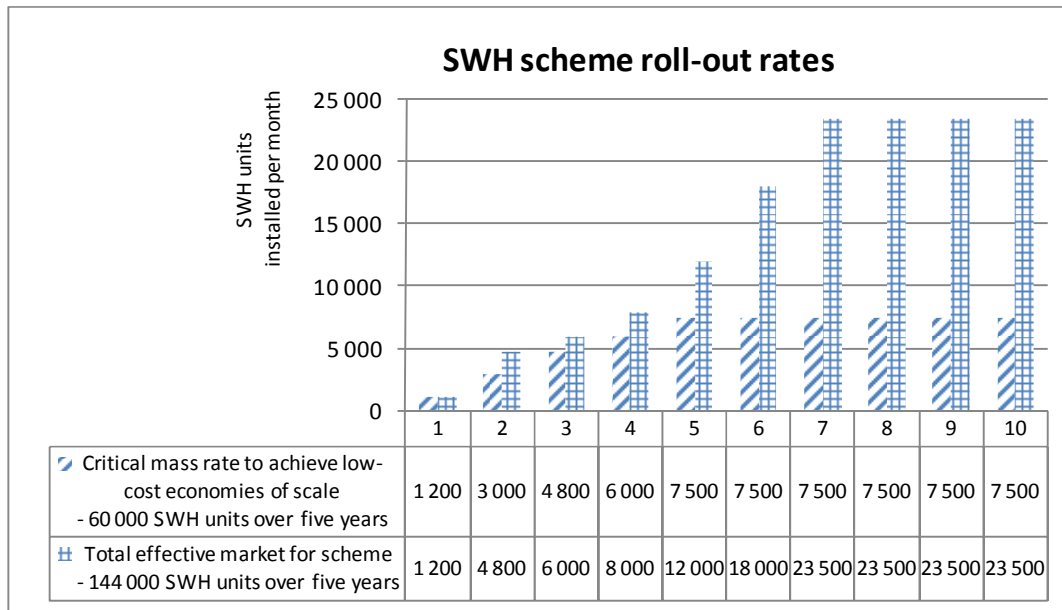
Two conditions set the critical-mass roll-out rate

1. Firstly, the quantity required by the supply side.
Minimum demand for local SWH manufacture that will allow mass-production at volumes that can achieve economies of scale sufficient to decrease costs to a level for effective penetration of the market of Cape Town households that use conventional electric hot water geysers. In discussions with the SWH industry it has emerged that an average quantity of 1000 units per year for five years would provide a big enough market to achieve minimum necessary economies of scale.
2. Secondly, whether the quantity required by the supply side will be taken up by the demand side in the scheme with sufficient certainty.
The market assessment identifies at least 216,000 stand-alone houses with household electricity usage that financially justifies a SWH purchase at 2012 electricity prices. The statistics presented in the market assessment analysis are sufficiently convincing that it is *very most likely* that at least the supply side critical mass of 1,000 units per month average over five years can be attained. Given that electricity prices are set to further rise significantly it is also likely that an effective scheme has a significantly higher potential (see below)

Thus the *critical mass rate is a minimum quantity* – the effective market might turn out to be much higher. The critical mass roll-out rate is the *minimum* required to achieve economies of scale AND an amount that the market assessment provides adequate certainty can be reached in the five year roll-out, for the purposes of securing a loan.

¹ On the contrary, the scheme aims to transform the market, which means that other players also need to continue operating.

A summary of roll out rates to attain the effective and critical targets is presented below in periods of 6 months over 5 years:



Market transformation

The ultimate goal of the scheme is market transformation: i.e. to enable a scheme whereby market failures are overcome. These market failures are preventing the uptake of a hot-water solution that has considerable benefits for households, the local economy, the national economy and the environment.

A scheme designed to achieve the *critical mass roll-out rate* to create economies of scale combined with the flexibility to reach the total effective target market as defined above, will achieve market transformation. The transformation will result in a supply side that can provide locally-produced units at a price low enough to achieve mass-penetration and a demand-side of a market of households that are well-informed of the significant benefits of SWH and have confidence in local suppliers and the SWH technology.

The aim is not to crowd all non-scheme suppliers out of the market with the government-enabled scheme but ultimately to build a strong SWH supply industry that can operate without further government intervention.

There is a larger market than the total effective market – parts of this market will be served by service providers outside the scheme during the five-year scheme period and as the market transforms this larger market will take-up SWHs so that after the time-period of the scheme it is the ultimate aim of the scheme that a much larger penetration will be achieved by industry without government intervention.

Summary

The report provides evidence of a potential market of **216,000 households** which would experience significant financial benefit from installing, at minimum, a 150l SWH through the Cape Town SWH programme.

This market includes all formal houses in Cape Town which meet the following criteria:

- i. The house must have access to roof space to allow ease of SWH installation
- ii. The house must be owner occupied in order to make initial SWH sales and operation of the SWH programme simple.
- iii. The household must use greater than 450kWh electricity per month to financially justify the installation of a SWH.

The findings of this report also provide a high level of confidence in a potential market that for at least achieving a “Critical Mass” of SWH roll-out to achieve market transformation. This would involve the roll-out of some 1,000 SWH per month for four years, i.e. **60,000 units**, and would allow for the establishment of local mass-production at economies of scale sufficient to decrease costs to a level for effective penetration of the market of Cape Town households that use conventional electric hot water geysers.

Finally, the report settles on an effective SWH programme rollout target of **144,000 units**, taking into account the assumption that even though the programme will be financially beneficial to the potential market there will be several non participants.

OPINION

for

THE CITY OF CAPE TOWN

on

THE SOLAR WATER HEATING ENDORSEMENT PROJECT

Introduction

1. My consultant is the City of Cape Town (“the City”).
2. The City has conceptualised a project (“the project”), the aim of which is to facilitate the roll-out of high-pressure solar water heaters or heat pumps (or both) to the domestic market in the City’s area of jurisdiction.
3. The project has been conceptualised as an open endorsement programme. Briefly, the City will set technical, quality and other standards against which it will measure the products and services of solar water heater and heat pump suppliers. The City will invite suppliers to submit themselves to evaluation by the City against those standards – the intention currently is that such an invitation will be issued to suppliers twice a year. Suppliers whom the City considers to have met the standards will be entitled to market that fact; in other words, they will be entitled to include as part of their marketing campaigns that they meet the standards set by the City and that their products and services therefore carry some form of endorsement by the City.
4. There is no cap on the number of suppliers whom the City will endorse (hence the description “*open endorsement programme*”); endorsement is simply a matter of meeting – and thereafter continuing to meet – the City’s standards. The list of endorsed suppliers is likely to change over time for two reasons. First, the City will monitor the products and services of suppliers it has endorsed and will withdraw its endorsement where it finds that such suppliers are falling short of the City’s standards. Secondly, because the City intends implementing the evaluation process

twice a year, a supplier who does not qualify today may, by improving its products and services, qualify in six months' time.

5. One of the major impediments to large-scale roll-out of solar heating products is the upfront cost to consumers of paying for the products. The City therefore intends briefing financial institutions about the project, so that such institutions are aware of the City's support for large-scale roll-out of solar heating products and of the opportunities for financing the purchase of solar water heating products from endorsed suppliers. It is hoped that commercial lenders will see the potential of this market, which the City's endorsement programme will boost, and that lenders will structure products which make the purchase of solar heating devices by consumers far easier. (Financial institutions could potentially finance consumers directly, or could seek tie-ups with particular suppliers.)
6. Importantly, there will be no contractual relationship between the City and customers, nor between the City and financial institutions, nor will the City act as intermediary between suppliers and customers, or financial institutions and suppliers, or financial institutions and consumers.
7. Implementation of the project will involve a limited amount of expenditure, essentially for administration purposes, including a marketing and publicity campaign. No capital expenditure is involved.
8. The key feature of the project is therefore the accreditation by the City of suppliers who meet the City's criteria. Qualifying suppliers are authorised to use the City's name when they market their products to consumers and when they negotiate tie-ups

with financial institutions; the relationship between the City and such suppliers is, in my view, essentially a non-exclusive licensing arrangement.

9. The project has two major objectives. The first is to encourage residents to make greater use of a clean and renewable source of energy (solar power) in place of electricity. In South Africa, most electricity is generated by coal-fired power plants, which are carbon emissions-intensive and which rely on a non-renewable fuel. If the project is successful, it will contribute towards reducing pollution, achieving a cleaner environment and the sustainability of development. The second objective of the project is that the increased use of solar power by households will reduce demand on the grid; the project will therefore be an effective demand-side management intervention.
10. There are various other initiatives in place in South Africa which are aimed at promoting the use of solar water heating devices. The national Minister of Energy has set national targets for the roll-out of solar water heating devices. There is a national programme in place, managed by Eskom, in terms of which Eskom will cover part of the cost to a consumer of the purchase and installation of a solar water heater.¹ (The Eskom project therefore differs from the City's proposed project in at least one important way, namely that Eskom makes a payment to the customer. It is not clear to me whether the source of the funds which Eskom uses to pay customers is the National Revenue Fund or Eskom's own revenue.) In 2011, the national Minister of Trade and Industry amended the National Building Regulations in order to regulate energy usage in buildings; the amended regulations stipulate that at least

¹ According to my instructions, there is also a programme managed by the national Department of Energy, targeted at low-pressure solar water heaters. As indicated earlier, the City's programme is aimed at high-pressure solar heating devices.

50% of the average hot water needs of buildings in respect of which plans need to be submitted must be provided by means other than electrical resistance heating, including by solar heating.²

11. However, the City's proposed project does not form part of any existing legislative scheme; there is no existing programme or legislation which either authorises or compels municipalities to undertake such accreditation or endorsement projects.

12. Against that background, the City requires advice on three issues:

12.1 first, whether the City has the legal competence to implement the project;

12.2 secondly, the potential legal risks to which implementation of the project may expose the City; and

12.3 . thirdly, whether implementation of the project entails procurement or supply chain management activities, which in the case of municipalities are regulated primarily by Part 1 of Chapter 11 of the MFMA,³ the Municipal Supply Chain Management ("SCM") Regulations which were made in terms of the MFMA, and the City's own SCM Policy.

13. I consider those issues in turn below, and then end with a brief conclusion summarising my advice.

² The amended regulations were published in the *Government Gazette* No. 34586 on 9 September 2011.

³ The Local Government: Municipal Finance Management Act No. 56 of 2003. The original source of regulation is section 217 of the Constitution.

The first issue: The City's legal competence to implement the project

14. It is a fundamental principle of South Africa's constitutional order that government may exercise no power and perform no function beyond what is conferred on it by law:

*“Administrative power is not self-generating. Rather, it is conferred by law.”*⁴

15. Most administrative action has a legislative source. I have indicated that there is no legislation in place compelling or authorising the City to implement the project. However, while legislation is the most important source (in the sense of the quantitatively-most-significant source) of administrative power, it is not the only source. The courts have recognised that administrators do sometimes perform lawful actions for which no specific authority exists in legislation, and that the potential sources of their power to perform such actions include general constitutional duties imposed on them, as well as their common-law powers.⁵

16. In *Kyalami Ridge*,⁶ the Constitutional Court held that the establishment by the state of a transit camp on state land for the victims of a flood, while not authorised in terms of any legislation, was nonetheless lawful. Two sources of the state's power to establish the camp can be discerned in the judgment. The first source is the government's general constitutional obligations – specifically the constitutional right to housing, the protection and promotion of which right is an obligation binding on

⁴ Hoexter *Administrative Law in South Africa* 2nd edition 2012 Juta at pages 29 – 30

⁵ Hoexter *op cit* at page 35

⁶ *Minister of Public Works and others v Kyalami Ridge Environmental Association and another (Mukhwevho intervening)* 2001 (3) SA 1151 (CC)

“the various legislative and executive organs in all spheres of government”.⁷ The second source is the state’s common-law rights as the owner of the land on which the camp was put up:

*“I can see no reason why the government as owner of property should not under our law have the same rights as any other owner. If it asserts those rights within the framework of the Constitution and the restrictions of any relevant legislation, it acts lawfully.”*⁸

17. The Supreme Court of Appeal has also recognised both the capacity of the state to exercise common law rights and the need for it to exercise such rights in accordance with the Constitution. In *Grey’s Marine*, the Court stated that –

*“While it is true that the State enjoys the private rights of ownership it was pointed out in [Kyalami Ridge] that those rights are to be asserted within the framework of the Constitution”.*⁹

18. The recognition by the courts of the state’s right to exercise the common-law rights of ownership, within the framework of the Constitution, is relevant to the City’s proposed project because of the view, set out earlier, that the relationship between the City and accredited suppliers is essentially a non-exclusive licensing arrangement. The right to authorise others to use one’s name or mark is a right which flows from ownership of the name or mark. It is a right which the City may

⁷ At [37] and [48]

⁸ At [40] (my underlining)

⁹ *Grey’s Marine Hout Bay (Pty) Ltd and others v Minister of Public Works and others* 2005 (6) SA 313 (SCA) at [26]

therefore exercise as an incident of its common law rights of ownership – provided that it does so “*within the framework of the Constitution and the restrictions of ... relevant legislation*”.

19. In order to assess whether the City, in implementing the project, does so “*within the framework of the Constitution*”, it is in my view necessary to consider the Constitution from two opposite, but complementary, perspectives. The first question is whether the Constitution is the source of positive general constitutional obligations on the City relevant to the project (in the same way as the constitutional duty to provide housing was found, in *Kyalami Ridge*, to be one of the sources of the state’s power to establish the transit camp). The second question is whether the Constitution contains any restrictions on the City’s powers (including powers which it exercises as an incident of its common-law rights of ownership) in relation to the project. Those two questions are considered below.

The Constitution as a positive source of the City’s powers in relation to the project: the environment right

20. In terms of section 8(1) of the Constitution, the Bill of Rights binds all organs of state (including municipalities). In terms of section 7(2), the state is required to “*respect, protect, promote and fulfil the rights in the Bill of Rights*” (my underlining).
21. Of direct relevance to the project is the environment right, set out in section 24 of the Constitution. Section 24 provides that everyone has the right –

- “(a) *to an environment that is not harmful to their health or well-being; and*
- (b) *to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –*
- (i) *prevent pollution and ecological degradation;*
- (ii) *promote conservation; and*
- (iii) *secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”*

22. It is worth noting that the role of municipalities in contributing to the progressive realisation of the environment right was reinforced by Parliament in the Municipal Systems Act.¹⁰ Section 4(2) of the Municipal Systems Act provides that –

“The council of a municipality, within the municipality’s financial and administrative capacity and having regard to practical considerations, has the duty to – ...

- (i) *promote a safe and healthy environment in the municipality; and*
- (j) *contribute, together with other organs of state, to the progressive realisation of the fundamental rights contained in sections 24 [environment], 25 [property], 26 [housing], 27 [health care, food, water and social security] and 29 [education] of the Constitution.”*

23. Furthermore, section 152(1) of the Constitution provides that the objects of local government include –

¹⁰ Local Government: Municipal Systems Act No. 32 of 2000. See also section 11(3)(1): “A municipality exercises its legislative or executive authority by – ... promoting a safe and healthy environment”.

- 23.1 ensuring the provision of services to communities in a sustainable manner;
 - 23.2 promoting social and economic development; and
 - 23.3 promoting a safe and healthy environment.
24. In terms of section 152(2), a municipality “*must strive, within its financial and administrative capacity, to achieve [those] objects*”.
25. In my view, the provisions referred to above provide general constitutional authority for the implementation of the project by the City. As I explained earlier, if the project is successful and results in a significant increase in the use of clean, renewable solar power, with a corresponding reduction in the use of coal-based electricity, it will contribute towards reducing pollution and achieving a cleaner environment. It will also contribute towards the sustainability of development, in that a greater proportion of residential areas’ energy needs will be met from sustainable sources. The project is therefore potentially a practical means of promoting the environment right, protected by section 24 of the Constitution. The obligation to promote the environment right is an obligation on the state, including on the City.
26. In addition, the steps which the City intends taking to make it easier for consumers to buy solar water heaters – i.e. its proposed engagement with financial institutions – falls within its constitutional object of promoting social and economic development.

The Constitution as a positive source of the City's powers in relation to the project: electricity reticulation

27. The Constitution divides legislative and executive powers and functions among the three spheres of government. Municipalities have executive authority in respect of, and the right to administer, the local government matters listed in Part B of Schedule 4 and Part B of Schedule 5 of the Constitution, as well as any other matter assigned to them by national or provincial legislation.¹¹ In addition, municipalities have the right “to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of [their] functions”.¹²
28. One of the matters listed in Part B of Schedule 4 is electricity reticulation.¹³ The scope of the “*electricity reticulation*” function is generally accepted as including the physical setting-up and maintenance of networks for the supply of electricity to consumers and the commercial activity of supplying electricity through those networks.¹⁴
29. I am instructed that in some areas of Cape Town, the maximum capacity of the local electricity reticulation networks has been reached or is close to being reached. This puts those networks at risk of overloading, particularly during times of high demand, and when the supply of power is resumed after a power cut. It also means that

¹¹ Section 156(1) of the Constitution

¹² Section 156(5) of the Constitution

¹³ Specifically, “*electricity and gas reticulation*”

¹⁴ It is clear from the definitions in section 1 of the Electricity Regulation Act No. 4 of 2006 that this is the interpretation accepted by Parliament. “*Reticulation*” is defined as “*trading or distribution of electricity and includes services associated therewith*”; “*distribution*” is defined as “*the conveyance of electricity through a distribution power system*” (that is, a low-voltage power system); “*trading*”, in turn, is defined as “*the buying or selling of electricity as a commercial activity*”.

before new development can take place in those areas, the reticulation network will need to be upgraded to increase capacity (for example by the installation of additional substations, transformers, and the like).

30. I am further instructed that the successful roll-out of solar water heaters in those areas will result in a reduction in the load on the reticulation networks in those areas, as households' heating needs are partly met by solar power in place of electrical power. This will in turn result in network capacity being made available. If the project is successful in this way, it will lower the risk of overloading those networks which are running at and close to maximum capacity; it will remove the electricity network constraint on further development in those areas; and it may also allow the City to delay upgrading the networks in those areas – and to delay the capital expenditure which such upgrades entail.

31. In my view, it falls within the power of the City, as an organ of state with constitutional responsibility for electricity reticulation, to protect and to maximise the use of its reticulation networks, in the manner described above. Implementation of the project in my view therefore falls within the City's constitutional powers for this reason too.

Does the Constitution restrict the City's powers in relation to the project?

32. I turn next to the second question, namely whether the Constitution restricts the City's powers in relation to the project in any way. Given my view that the Constitution does authorise the City's implementation of the project, the second

question is in my view essentially a question about whether such implementation would intrude on the functional integrity of the other spheres of government.

33. As indicated above, the Constitution divides legislative and executive powers and functions among the three spheres of government. The three spheres of government, and organs of state within each sphere, are required to respect the powers and functions of government in the other spheres. They may not assume any power or function except those which the Constitution confers on them, and must exercise their powers and perform their functions in a way which does not encroach on the geographical, functional or institutional integrity of government in the other spheres.¹⁵

34. The Constitution also places positive co-operative governance obligations on government. The three spheres of government, and organs of state within each sphere, must “*co-operate with one another in mutual trust and good faith by –*

(i) *fostering friendly relations;*

(ii) *assisting and supporting one another;*

(iii) *informing one another of, and consulting one another on, matters of common interest;*

(iv) *co-ordinating their actions and legislation with one another ...”*.¹⁶

35. The functional area “*Environment*”, listed in Part B of Schedule 4, is clearly relevant when considering the powers and functions of the different spheres, given

¹⁵ Section 41(1)(e), (f) and (g) of the Constitution

¹⁶ Section 41(1)(h)(i) to (iv)

that one of the major objectives and hoped-for outcomes of the project is a cleaner environment. That is an area of concurrent national and provincial competence. However, as has been explained, the environment is also the subject-matter of a right protected in the Bill of Rights, and there is a duty on all organs of state to promote the environment right.

36. The functional area of energy is also clearly relevant, given that the second major objective of the project is the reduction of demand on the national grid, by meeting a portion of households' energy needs from solar power. Energy is an area not listed in either Schedule 4 or Schedule 5 of the Constitution. It is therefore a so-called residual matter, in respect of which the national sphere has exclusive competence. As has been explained, however, the functional area "*electricity reticulation*" – a component of the broader energy function – is specifically allocated as a local government function, and in my view, for the reasons given earlier, the project falls within the City's electricity reticulation-related powers and functions.¹⁷
37. There are two factors which together lead me to conclude that implementation of the project by the City will not intrude on the functional integrity of the other spheres of government. The first factor is the fact that local government, including the City, has a clear constitutional role in relation to electricity reticulation and a clear, even if limited, constitutional role in relation to the environment. The objects of the project are therefore constitutionally legitimate. The second factor is the very limited nature

¹⁷ The courts have made it clear that the correct approach to adopt in determining where apparently overlapping functional areas of the respective spheres start and end is first to determine the scope of the powers vested in municipalities, then to determine the scope of the powers vested in provincial government, and finally to determine the scope of national government's powers: *Johannesburg Municipality v Gauteng Development Tribunal and others* 2010 (2) SA 554 (SCA) at [35] to [37], adopted on appeal by the Constitutional Court.

of what the City proposes doing – namely permitting suppliers whose products and services meet its criteria to use its name.

38. Taking those two factors together, my view is that the project does not amount to the assumption by the City of a power or function not allocated to it or an encroachment on the functional integrity of the other spheres of government. The City's project, as I understand it, does not limit or undermine or obstruct similar projects by other organs of state; it is complementary to such projects.

39. Indeed, it would appear that the national objective of achieving the solar water heating roll-out targets is more likely to be met if a series of locally-focussed, locally-targeted initiatives is embarked on, which will complement the national projects in place under Eskom and the Department of Energy. The positive co-operative government duties placed on government are relevant here; by implementing the project the City is arguably assisting and supporting national government, in accordance with the requirements of the Constitution, in its efforts to reduce electricity demand nation-wide.¹⁸

Other issues

40. If a significant number of households switch to using solar power for some of their heating needs – in other words, if the project is successful – the City's electricity sales revenue will presumably drop. I have considered whether that possibility has a bearing on the City's legal competence to implement the project. In my view it does not.

¹⁸ See specifically section 41(1)(h)(ii) of the Constitution.

41. That possibility is a policy factor which the City's council should take into account when it exercises its executive authority by deciding whether or not to implement the project.¹⁹ It is a factor which should be taken into account along with other potentially relevant policy factors, such as any administrative burden which the project imposes, the environmental benefits of the project, any financial benefits arising from the ability to defer capital expenditure on reticulation networks, and the like, all of which will need to be weighed up against each other. But the possibility – even the likelihood – of a drop in the City's electricity revenue as a result of the successful implementation of the project does not mean that the project falls beyond the City's legal competence. The council's decision will entail the exercise of a value judgment, with the potential budgetary impact of the decision being one of the factors to take into account.
42. I have also considered whether the provisions of sectoral legislation (notably the Electricity Regulation Act,²⁰ the National Energy Act²¹ and the National Environmental Management Act²²) have any bearing on the City's competence to implement the project. In my view they do not. Nor does the MFMA in my view constrain the City from undertaking the project.²³

¹⁹ A municipal council may not act arbitrarily: *Diggers Development (Pty) Ltd v City of Matlosana* 2010 JDR 0214 (GNP) at [32]

²⁰ Act No. 4 of 2006

²¹ Act No. 34 of 2008

²² Act No. 107 of 1998

²³ In terms of section 164 of the MFMA, a municipality may not “conduct any commercial activities – otherwise than in the exercise of the powers and functions assigned to it in terms of the Constitution or national or provincial legislation”. In my view, the non-exclusive licensing arrangement proposed, for which no fee will be charged, does not constitute a “commercial activity” as contemplated in section 164. Furthermore, as has been argued above, the source of the City's power to implement the project is the Constitution. The potential impact of Part 1 of Chapter 11 of the MFMA and of regulations made under the MFMA is considered later in this opinion.

43. For the reasons set out above, my view is that implementation of the project falls within the City's legal competence.

The second issue: Legal risks

44. Implementation of the project in my view potentially exposes the City to two broad categories of risk. The first category of risk arises from the practical steps which are an inevitable part of implementing the project; such steps will include the taking of decisions which may constitute "*administrative action*" in terms of the Promotion of Administrative Justice Act 3 of 2000 ("PAJA"), and which may therefore be susceptible to judicial review. The second category is the risk of civil claims for damages from persons who allege that they have suffered loss arising from the programme. The two categories of risk are addressed below.

Judicial review under PAJA

45. The definition of "*administrative action*" in section 1 of PAJA reads in part as follows:

"any decision taken, or any failure to take a decision, by –

(a) an organ of state, when –

(i) exercising a power in terms of the Constitution or a provincial constitution; or

(ii) exercising a public power or performing a public function in terms of any legislation; ...

which adversely affects the rights of any person and which has a direct, external legal effect ...”

46. The definition expressly excludes certain functions and decisions from the ambit of administrative action. One of the excluded matters is *“the executive powers or functions of a municipal council”*.
47. As indicated above, in my view a decision by the City to implement the project would constitute an executive decision by the council and would fall outside the ambit of administrative action. Such a decision on its own is in any event unlikely adversely to affect any person’s rights, nor to have any direct external legal effect, and would for those reasons also fall outside the definition. My view is therefore that the decision to implement the project is not a decision reviewable in terms of PAJA.
48. However, the actual implementation of the project will entail the taking of decisions which may constitute administrative action – most significantly, the decision whether a prospective supplier does or does not meet the City’s standards, as well as the decision to cancel a qualified supplier’s endorsement because of a subsequent failure to maintain those standards. A supplier who applies for accreditation and is unsuccessful may wish to challenge the City’s decision. An accredited supplier whose accreditation is withdrawn may wish to challenge the withdrawal.
49. The grounds on which administrative action may be challenged and set aside are set out in section 6 of PAJA. They include where the action was procedurally unfair,²⁴

²⁴ Section 6(2)(c)

where the action was taken arbitrarily²⁵ or because irrelevant considerations were taken into account or relevant considerations were not considered,²⁶ where the action is not rationally connected to the purpose for which the decision was taken²⁷ or the information before the decision-maker,²⁸ and where the action is otherwise unconstitutional or unlawful.²⁹

50. The remedies which a court may grant where administrative action is successfully challenged include setting aside the decision (in which case the court will usually³⁰ refer the decision back to the original decision-maker for reconsideration), making a declaration regarding the parties' rights, and granting interdictory and other temporary relief.³¹
51. Given the likelihood that decisions made in implementation of the project will constitute administrative action, the provisions of section 3 ("*Procedurally fair administrative action affecting any person*") and section 5 ("*Reasons for administrative action*") of PAJA must also be borne in mind by the project managers, both in relation to the evaluation of suppliers' submissions and the decision whether or not to endorse them, and in relation to the potential subsequent decision to withdraw a supplier's endorsement:

²⁵ Section 6(2)(e)(vi)

²⁶ Section 6(2) (e)(iii)

²⁷ Section 6(2)(f)(ii)(aa)

²⁸ Section 6(2)(f)(ii)(cc)

²⁹ Section 6(2)(i)

³⁰ In exceptional circumstances, the court may substitute its own decision for the original decision or order the decision-maker to pay compensation. It is seldom that the courts find that there exceptional circumstances justifying such orders.

³¹ Section 8

51.1 From a practical perspective, the documentation setting out the details of the project for prospective participants in the project (i.e. for suppliers), as well as the documentation drawn up in respect of the possible withdrawal of an endorsement, must address the matters set out in section 3(2)(b) of PAJA. They include “adequate notice of the nature and purpose of the proposed administrative action”, “a clear statement of the administrative action” (i.e. what decisions the City proposes making), “adequate notice of any right of review or internal appeal”, and “adequate notice of the right to request reasons in terms of section 5”. Section 3(2)(b) also lists “a reasonable opportunity to make representations”. In relation to the evaluation of suppliers’ submissions and the decision whether to endorse a supplier, it is likely that – as seems to be the position with tender processes³² – the supplier’s submission to the City will itself constitute the “representation” (unless the City intends giving suppliers the opportunity to make oral representations about their products and services). However, in relation to the possible withdrawal of an endorsement, the requirements of procedural fairness would include giving the supplier in question an opportunity to make representations, before the City takes its decision.

51.2 Similarly, the project managers need to be aware that in terms of section 5, “any person whose rights have been materially and adversely affected by administrative action” is entitled to written reasons from the decision-maker for such action.

³² See Hoexter *op cit* page 374

52. From a practical perspective, the risk of challenges being brought in terms of PAJA is, it seems to me, an inherent and unavoidable part of the activities of the City, as an organ of state. The risk of such challenges being successful can be reduced by ensuring that, amongst other things, the documentation issued to prospective suppliers is as clear and unambiguous as possible; that the objective qualification criteria (for example in respect of technical specifications, or the minimum number of years that a supplier must have been in business) are clearly stipulated; that any subjective qualification criteria, which involve the exercise of a discretionary judgment, are clearly explained; that the evaluation process itself is carefully, fairly and consistently carried out and that the decisions made are justifiable in relation to the City's own documentation and in relation to the information put forward by prospective suppliers. Similar care will need to be taken in relation to the potential decision to withdraw an endorsement. It must be made clear to suppliers that the City has the right to withdraw its endorsement; the grounds on which the endorsement will be withdrawn, how a supplier's ongoing compliance with the City's requirements will be assessed, and the procedure which the City will follow in relation to a proposed withdrawal must also be made clear.

Civil claims for damages

53. Various forms of loss can be contemplated in relation to solar water heating devices. Where, for example, a defective product is installed in a house or where the installation itself is defective, patrimonial (i.e. financial) loss may be caused by damage to or the destruction of property or by personal injury. Those who suffer such loss may attempt to recover such loss via a civil claim for damages.

54. The obvious form that civil claims for damages will take is a claim for breach of contract by the claimant against the supplier or installer. As I indicated in the introductory section of this opinion, there will be no contractual relationship between the City and consumers; a consumer who wishes to make a claim against the City will therefore not be able to bring the claim in contract.
55. However, a claimant may argue that the City should be liable to him or her in delict for damages suffered as a result of a defective product sold by, or a defective installation carried out by, a supplier endorsed by the City in terms of the project. The claimant may argue that the City, when it accredited the supplier, failed in its duty to exercise reasonable care and to prevent loss to the claimant, by negligently endorsing a supplier whose products and services were in fact poor.
56. The question of liability in this area is very much dependent on the specific facts of each case. For that reason, it is not possible to give comprehensive abstract advice on whether the City would be liable to such a claimant. It can be said, however, that it would be very difficult for a claimant to establish all of the requirements necessary to succeed in a delictual claim against the City, given the kinds of facts likely to arise here. Two of the requirements for a delictual claim will pose particular difficulties for a claimant here: the requirement of causation, and the requirement of wrongfulness.

Causation

57. The requirement of causation has two elements, factual causation and legal causation.

58. The essential question underlying factual causation is whether the defendant's conduct (here, the City's endorsement of a particular supplier) was a factual cause of the harm suffered by the claimant (here, for example, loss caused by a fire caused in turn by a poorly installed solar water heater). The most commonly used test for factual causation is the so-called "*but for*" test: would the harm have occurred, but for the defendant's conduct? Our courts have commented that –

*"[i]nherent in [this] form of reasoning is thus considerable scope for speculation which can only broaden as the distance between the wrongful conduct and its alleged effect increases. No doubt a stage will be reached at which the distance between cause and effect is so great that the connection will become altogether too tenuous ...".*³³

59. Assuming that the claimant is able to produce credible evidence to show that, but for the City's endorsement of the supplier in question, the claimant would not have contracted with that particular supplier, the claimant must then meet the legal causation requirement.
60. Underlying the requirement of legal causation is the recognition that the application of the test of factual causation on its own casts the net of delictual liability too widely. Legal causation recognises that, as a matter of policy, a person should not be liable in delict for all harm which is factually caused by his or her conduct.

³³ *Minister of Safety and Security v Van Duivenboden* 2002 (6) SA 431 (SCA) at [25]. The court goes on to comment that the risks of a tenuous connection should not be exaggerated.

61. On the facts likely to arise here, there will be factors present which tend “*to separate cause and effect*”,³⁴ with the result that it will be very difficult for a claimant to establish the legal causation requirement. The first is the obvious point that the claimant’s loss does not flow directly from the City’s endorsement of the supplier, but rather from the supplier’s defective product or installation. The claimant’s damage is not something which, in the normal course of events, could be expected to flow from the City’s endorsement of the supplier. Secondly, there is the very specific and limited purpose for which the City acted when it endorsed the supplier. Thirdly, it is likely that there will be lapse of time between the act complained of (the City’s endorsement) and the harm suffered.
62. In my view it is unlikely that a claimant will satisfy the legal causation requirement, even if he or she is able to satisfy the factual causation requirement.

Wrongfulness

63. A further requirement for a claim in delict is the requirement of wrongfulness, sometimes termed unlawfulness. Like the requirement of legal causation, the wrongfulness requirement is also an expression of policy considerations.
64. Importantly, in the factual circumstances most likely to arise, the claim would be for what is known as pure economic loss (rather than loss caused by the City’s having physically injured the claimant’s property while, say, installing street lights). In our law, causing pure economic loss is *prima facie* lawful and therefore not actionable. The courts will determine in each case whether, in the circumstances, there was a

³⁴ *International Shipping Co (Pty) Ltd v Bentley* 1990 (1) SA 680 (AD) at 702B.

legal duty on the defendant (here, the City) to avoid the loss. The claimant would need to show that the City was under a legal duty to exercise care so as to avoid economic loss being caused to him or her. Again, in my view a claimant is unlikely to meet this requirement.

65. The City should make clear in advance to potential consumers the very limited nature and purpose of the City's involvement in the project – i.e. that its endorsement of a supplier does not constitute or imply any kind of warranty or representation regarding the supplier's goods or services. Potential customers should be encouraged to undertake their own assessment of a supplier's goods and services, taking into account customers' own particular needs and circumstances.

The third issue: procurement

66. Part 1 of Chapter 11 of the MFMA regulates municipal procurement. It applies to –
- 66.1 the procurement by municipalities of goods and services;
 - 66.2 the disposal by municipalities of “*goods no longer needed*”;
 - 66.3 the selection of contractors to provide assistance in the provision of municipal services in certain circumstances; and

- 66.4 the selection of so-called “*external mechanisms*” for the provision of municipal services in certain circumstances.³⁵
67. The endorsement of qualifying suppliers in terms of the project does not, in my view, fall within any of those categories. The categories set out in paragraphs 66.2 to 66.4 are clearly irrelevant. The category set out in paragraph 66.1 is also irrelevant in my view, because the endorsed suppliers will not be supplying any goods or services to the City itself.
68. On the basis that the project does not entail activities regulated by Part 1 of Chapter 11 of the MFMA, the Municipal SCM Regulations and the procurement provisions contained in the City’s own SCM Policy do not apply to the project.
69. What that means is that the City does not have to follow the specific processes and procedures prescribed in the SCM Regulations and its SCM Policy during the process of identifying qualifying suppliers. Whatever process the City follows, however, must be in accordance with the requirements of administrative fairness, as explained earlier.
70. There is a further set of regulations made in terms of the MFMA which merits mention, namely the Municipal Asset Transfer Regulations (“the Asset Transfer

³⁵ Section 110

Regulations”), which regulate amongst other things the grant by the City of rights to use City assets.³⁶

71. I have briefly considered whether, on the basis that the endorsement constitutes the grant to suppliers of the right to use the City’s name, the Asset Transfer Regulations are applicable to the endorsement by the City of suppliers. In my view, they are not applicable.
72. First, the relevant provisions apply to the grant of rights to use, control or manage “*capital assets*”. Capital assets are defined as –
- “(a) *any immovable asset such as land, property or buildings; or*
 - (b) *any movable asset that can be used continuously or repeatedly for more than one year in the production or supply of goods or services, for rental to others or for administrative purposes, and from which future economic or social benefit can be derived, such as plant, machinery and equipment*”.
73. Part (a) of the definition is clearly inapplicable. With regard to part (b), suppliers who are entitled to market the fact that their products and services carry the City’s endorsement will not, in my view, be using the City’s name “*in the production or supply*” of their goods and services in the sense intended in the definition. The scope of what is intended to be covered by the definition is indicated by the examples given, of plant, machinery and equipment – in other words, physical assets

³⁶ It is specifically Chapter 4 of the Asset Transfer Regulations which regulates the grant of “*rights to use, control or manage*” capital assets. In terms of clause 338 of the City’s SCM Policy, “*the granting of rights (where sections 14 and 90 of the MFMA do not apply) by the City, shall be executed strictly in accordance with Chapter 4 of the Municipal Asset Transfer Regulations*”.

used during the process of producing goods or the process of furnishing services (for example, buses used for the provision of municipal transport services). Nor will the City's name be used "*for rental to others or for administrative purposes*". For that reason, my view is that the asset in question (the City's name) falls outside the scope of the definition of capital asset.

74. Secondly, regulation 3 of the Asset Transfer Regulations is headed "*Governing principles*" and provides as follows:

"These regulations are governed and must be implemented in accordance with the following principles:

- (a) ***Valuation principle***, i.e. *the need to attach a value to the transfer or disposal of a municipal capital asset, in order to ensure that the interests of the municipality or municipal entity and of its stakeholders are not prejudiced by the transfer or disposal;*
- (b) ***Continuity of service principle***, i.e. *the need to ensure the uninterrupted continuance of a municipal service when a municipal capital asset that is being used in the delivery of that service, is being transferred or disposed of, particularly when the asset is used in the provision of the minimum level of basic municipal services;*
- (c) ***Risk transfer principle***, i.e. *the need to transfer the risk relating to a municipal capital asset in conjunction with the transfer of the asset;*
- (d) ***Asset preservation principle***, i.e. *the need to prevent the indiscriminate or unsustainable transfer or disposal of a municipal asset in order not to undermine the ability of the municipality or municipal entity to render or expand municipal services in the longer term."*

75. Regulation 3 not only sets out the principles governing the application of the regulations to a particular case, but is also in my view a useful guide to the purpose of the regulations – and is hence relevant to the question whether or not the regulations apply in a particular case. It is apparent from the principles collectively that the purpose of the regulations is to protect municipalities from –
- 75.1 failing to derive appropriate value where a municipal asset is transferred or disposed of, i.e. where the municipality loses ownership of the asset;
 - 75.2 losing control over assets municipalities need, either to provide municipal services, or to implement future decisions to expand municipal services or to provide new services (e.g. the sale and transfer of a landfill site would constrain a municipality’s decisions about the provision of refuse disposal services);
 - 75.3 losing the benefit of assets (e.g. the ability to earn rental income from an asset), while retaining the risk associated with the asset (e.g. the obligation to maintain the asset).
76. The concerns raised above do not arise in relation to the proposed non-exclusive endorsement of suppliers. In my view, the “*governing principles*” of the Asset Transfer Regulations indicate that the regulations were not intended to apply to activities of the kind entailed in the project.

Conclusion

77. In summary, my advice is that –

77.1 implementation of the project falls within the City's legal competence;

77.2 the decisions which the City will take in the course of practical implementation of the project may be susceptible to judicial review in terms of PAJA;

77.3 while there is a possibility of delictual claims for damages being brought against the City arising from implementation of the project, claimants will in my view have difficulty meeting all of the legal requirements of such claims, given the kinds of factual circumstances likely to arise;

77.4 implementation of the project does not entail procurement or supply chain management activities as regulated by Part 1 of Chapter 11 of the MFMA, the Municipal SCM Regulations and the City's own SCM Policy.

K Reynolds

Chambers

Cape Town

10 April 2013

Programme Management Unit functionality, staff and staff-budget

Owing to the size and complexity of this project, the establishment of a staffed and resourced Municipality Programme Management Unit (PMU) is necessary. The task of the PMU will be to ensure that the scheme is effectively implemented by the service provider/s, according to the Municipality's requirements, as specified in contracts with the service provider and that the roles for which the Municipality is responsible are adequately resourced.

Responsibilities of PMU

The PMU will be responsible for the following areas of work:

1. Management of an effective promotion, marketing and education campaign
2. Ensuring that the service provider call centre provides the Municipality with data and records according to the functionality specified in the contract
3. Overseeing the billing system
4. Managing compliance with selection criteria by virtue of which the Municipality selected and endorses the service provider. This includes:
 - a. Overseeing the service providers' performance and intervening accordingly in line with the contract between the Municipality and the service provider
 - b. Addressing exceptional customer complaints which could otherwise tarnish the image of the Municipality and the programme.
5. Selection of new service providers and technology as the programme progresses

These responsibilities and the staff and resources required to carry them out are described in more detail in the remainder of the document

Management of an effective marketing campaign

Lack of knowledge of SWHs among potential household users alongside the negative image of the technology and supply industry have been identified as key barriers to mass uptake, despite the obvious benefits offered by SWHs. Lack of knowledge is due to SWHs being a relatively novel technology that has largely been embraced only by "enthusiasts" and those prepared to pay a premium to protect the environment. The causes of the bad image have been unreliable technology and some (maybe a minority) of "fly-by-night" suppliers who received attention in the media. It is essential, for the success of the scheme, for the Municipality to provide clear information on SWH's and to provide comfort to potential users that reliable technology and service providers will be provided through the Municipality promoted and endorsed scheme. The promotion and marketing campaign will leverage the Municipality Brand and excellent communications, designed by professional marketing companies, such as those used in the successful electricity savings campaign, will be sourced. Much of the SWH programme is in effect an electricity savings campaign.

Key PMU management functions in this area include:

- a. Procurement of advertising and direct marketing company/ies
- b. Management of the development of a marketing strategy, including a monitoring and evaluation system
- c. On-going management of the campaign implementation and of the service provider/s (regular review in response to M&E information)

Ensuring that the service provider call centre provides the Municipality with data and records according to the functionality specified in the contract

The service providers' call centre's functionality will include on-line, real-time display of call-status and call-history and standard reports which allow on-going and spot-inspections of sales, installation maintenance and repair performance. A "call" is any instance of an interaction between the service provider and the customer, beginning with initial "sales" contacts, including appointments to install, installation records and certification status, routine maintenance call records and repair call records, the records including each step through these events. Thus the call centre will contain the current status of and detailed history of each sale and installation. Analysis of call-centre records thus affords detailed assessments of service provider performance at all levels. Proposals of gsm-based [cell-phone network- based] automatic systems with a "smart" sensor and possibly circuit breakers have been made and these will be considered in proposals as an additional or complimentary performance-monitoring option.

Key PMU management function in this area

The only PMU function in this area is to secure key call centre data at regular intervals throughout the programme

Overseeing the billing system

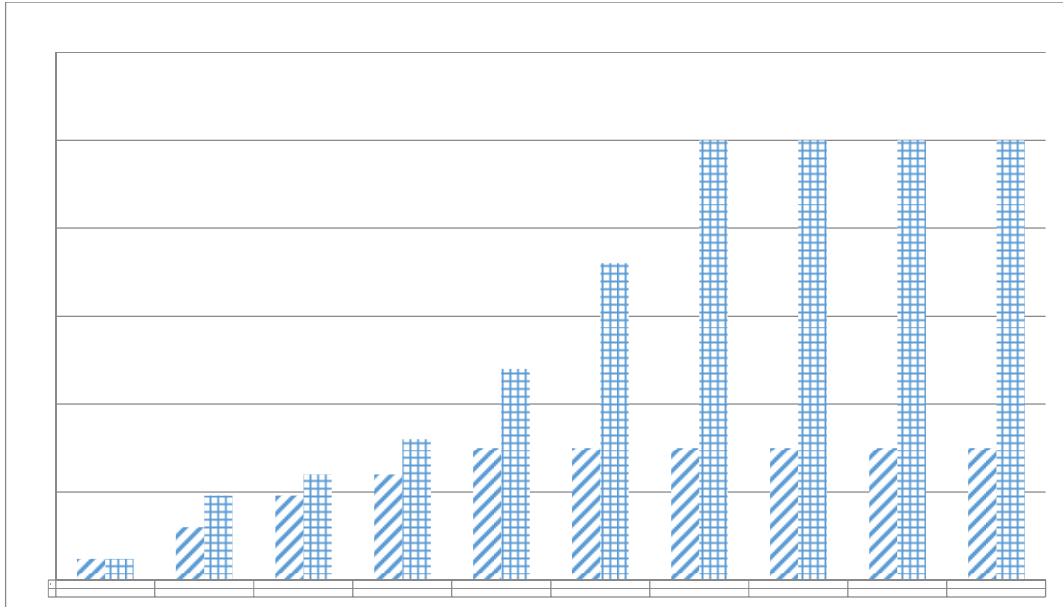
Billing system actions will be undertaken by Revenue Department staff under contract terms and a service level agreement and data-processing systems at the service provider and Revenue Department will be designed to implement these. However oversight of this process will be required.

Key PMU functions include:

- a. Addressing any problems that arise as a result of integrating the SWH programme into the billing system
- b. Ensuring regular end user repayment reports are passed on to the service provider
- c. Ensuring payments are made

Manage compliance with selection criteria by virtue of which the Municipality selected and endorses the service provider

The envisaged range of roll-out rates will be between a minimum critical-mass rate required to achieve low-cost economies of scale and a high-penetration rate where a significant portion of the target-market is reached.



The initial demonstration and ramp-up phase with low roll-out rates will be used to iron out teething problems but shortly thereafter it is anticipated that tens of thousands of units will be installed and quite probably at least a hundred new installations per day being completed. Even in an ideal scenario problem cases will arise. Given the large numbers in combination with Municipality endorsement, the Municipality has to be prepared to address such problems to reduce reputational risks.

Even though it will be made clear in the scheme promotion and marketing communications campaign and in the contracts with customers that the service provider is legally obliged to provide all services related to sales, supply and maintenance of SWH units, in some cases customers will insist on a response from the Municipality because the Municipality has promoted the scheme and endorsed the technology and service providers. Therefore request for response will inevitably find their way into the Municipality system. Such complaint/requests will be dealt with by the PMU.

To maintain the positive image of the scheme and to build and maintain trust in both SWH technology and in the qualifying service provider/s, Municipality attention will have to be paid to resolving such disputes. This is particularly important as even a relatively small number of improperly handled disputes could have a serious negative impact on the success of the scheme. It is very challenging to predict the number of such cases prior to the commencement of the scheme. Nevertheless, provision needs to be made for capacity to quickly identify and resolve problem cases.

Key functions of the PMU in this area include:

- a. Monitoring of service provider performance through

- i. periodic reports as specified in the contract between the Municipality and service provider,
 - ii. assessment of call centre records
 - iii. site inspections of recipients that indicate that there might be service provider performance issues.
- b. Intervening where problems have been picked up. Details of these interventions are provided in Appendix 1.

Selection of new service providers and technology and the programme progresses

The design of the programme and the Request for Proposal (RFP) process make provision for re-issuing RFP's if and when programme progress, market conditions and technology developments make this appropriate. For example, the present design does not explicitly make provision for heat-pumps but it is most likely that their inclusion will become desirable when necessary technical standards have been established.

Project Management Unit staffing

The PMU will report to the Head Energy and Climate Change or a designated official.

In order to provide the functionality described above, staff with the following skills will be required.

Post	No	Skills required	Task grade	Short job description
Programme Manager	1	Project management; understanding of marketing requirements; resolution of disputes on operational performance problems	T15	1. Manage programme As per main headings above: <ul style="list-style-type: none"> - Promotion and marketing campaign - Oversee billing - Manage compliance 2. Report on progress to the Head Energy and Climate Change <ul style="list-style-type: none"> - review strategy and any changes required -implement changes
Field supervisor	1	Able to supervise Inspectors and deal with "tricky" customer complaints and identify service provider	T12	1. Supervise inspectors 2. Report on problems to Programme Manager 3. Deal with difficult issue that arise in the inspectors' and administrators' interactions with SWH recipients and service providers that the inspectors

		compliance issues		and/or administrators cannot resolve.
Inspector	2	Technician PIRB certified Able to independently assess SWH sales process, SWH standards, installation standards and maintenance procedure standards	T10	<ol style="list-style-type: none"> 1. Visit SWH installations where recipients have not managed to satisfactorily resolve issues with service providers and resolve the issue by interacting with the recipients and the service providers 2. Report incidents where resolution is not obtained to field work supervisor 3. Do routine quality assurance in the field
Project Administrator and administrative assistant	2	Project Administrator and Admin assistant	T12 and T10	<ol style="list-style-type: none"> 1. Respond to enquiries about the scheme that service provider and general Municipality call centre cannot respond to. 2. Monitor Call Centre and identify problem events: follow up on these first with service provider and then allocate inspector if not resolved. 3. Take calls from recipients that have not managed to satisfactorily resolve issues with service providers 4. Allocate issue that require investigation/intervention to inspectors and keep records of status of handling of issues 5. Report problematic issues to supervisor

PMU staff budget

Posts	Grade	TCOE	No.	year 1		year 2		year 3		year 4		year 5		year 6	
				ZAR	No.	ZAR	No.	ZAR	No.	ZAR	No.	ZAR	No.	ZAR	No.
Programme Manager	T15	698 326	1	58 194	1	747 209	1	799 513	1	855 479	1	915 363	1	979 438	
Field Work supervisor	T12	368 925	1	30 744	1	394 750	1	422 382	1	451 949	1	483 585	1	517 436	
Inspector	T10	309 030	1	77 258	2	661 324	2	707 617	2	757 150	2	810 151	2	866 861	
Administrator	T10	309 030	1	25 753	1	330 662	1	353 808	1	378 575	1	405 075	1	433 431	
Administrative assistant	T9	277 173	0	0	1	296 575	1	317 335	1	339 549	1	363 317	1	388 749	
Travel costs				15 000		154 080		164 866		176 406		188 755		201 967	
Total				191 948		2 430 520		2 600 656		2 782 702		2 977 491		3 185 916	

Note that the budget for year 1 is for 3 staff members (Programme manager, Field Work Supervisor, Administrator) for 1 month (June 2013) and 1 staff member (Inspector) for 5 months (February 2013-June 2013). Thereafter a budget for full year salaries will be required.

Appendix 1

Interventions related to performance monitoring

A central feature of the design of the scheme is that the contract re payments passed from the Municipality billing system to the service provider cannot allow for withholding payment: i.e. all payments received have to be passed through, possibly minus a small transaction fee. Thus, payment cannot be used as a means for managing service provider performance.

Thus, interventions in the case of performance problems are limited to four modalities:

1. Interactions between Municipality officials and the service provider at various levels
 - a. Inspectors deployed by the PMU will co-operate with service provider staff in the field to assess and find remedies for problem cases
 - b. In the case where problems cannot be resolved in the field, Municipality officials will meet with service provider management to resolve issues
2. Manage scheme recipients "customer relations" with the Municipality and scheme - support of recipients in holding service provider/s to account in meeting terms specified in their contracts with the recipients.

As mentioned above, it will be made clear in the scheme marketing and in the contracts with customers that the service provider is legally obliged to provide all services related to sales, supply and maintenance of SWH units. However, in the face of sub-standard service it is often difficult for a householder, unassisted, to get relief.

The endorsement by the Municipality of the service provider and the SWH product will be given substance by deploying Municipality Inspectors to investigate claims of sub-standard service provider performance, according to the contract between the recipient and the

service provider. When there are deviations from required performance these reports should provide a first and effective means for requesting a remedy from the service provider. If the service provider remains recalcitrant the reports can be used as a basis either for discussions between the service provider and the Municipality and/or to assist the recipient in a legal demand.

3. Allocating the exclusive rights to the area to additional service providers.

The scheme as presently conceived envisages granting “exclusive endorsements” to service provider for geographic areas (probably along suburban boundaries). In the case of general poor performance and inadequate progress in addressing this, and after sufficient due process and notification to the incumbent, the “exclusive endorsement” will be extended to an additional service provider. The incumbent will remain legally liable for existing installations as per contract and recipients will be assisted by the Municipality in ensuring terms are met as mentioned in 2 above.

4. Performance Bond.

Service providers will be required to lodge a performance bond with a trust. Should a service provider go out of business (become non-operational – terms will be more exactly stated in the contract) the bond will be used to appoint a service provider to fulfil remaining maintenance obligations.

A few examples of performance problems and interventions

Problem	Possible action
OVERALL PERFORMANCE PROBLEMS	
Roll-out is not meeting targets	<ol style="list-style-type: none"> 1. PMU manager discuss issues with service provider at senior level 2. Allow service provider to implement solutions 3. If it becomes apparent that service provider is making adequate efforts (as specified in contract) and it is a matter of issues outside service provider’s required capabilities of control allow lower roll-out 4. If it becomes apparent that service provider is not meeting requirements, after sufficient due process and notification to the incumbent, the “exclusive endorsement” will be extended to an additional service provider
Call-centre records show that service provider not meeting maintenance performance specifications: (e.g. persistent unacceptable delays in responding to calls and/or completing repairs	<ol style="list-style-type: none"> 1. PMU manager discuss issues with service provider at senior level 2. Allow service provider to implement solutions 3. If it becomes apparent that service provider is making adequate efforts (as specified in contract) and it is a matter of issues outside service provider’s required capabilities of control allow lower roll-out 4. If it becomes apparent that service provider is not meeting requirements, after sufficient due process and notification

	to the incumbent, the “exclusive endorsement” will be extended to an additional service provider
Problems detected by the Municipality	
Inspectors identify sub-standard equipment or installations	<ol style="list-style-type: none"> 1. Inspectors liaise with service provider technical personnel and resolve issue 2. If cannot be resolved at technical level, Inspectors report to PMU management level and it is taken up at management level with service provider 3. If cannot be resolved: 4. PMU manager discuss issues with service provider at senior level 5. Allow service provider to implement solutions 6. If it becomes apparent that service provider is making adequate efforts (as specified in contract) and it is a matter of issues outside service provider’s required capabilities of control allow lower roll-out If it becomes apparent that service provider is not meeting requirements, after sufficient due process and notification to the incumbent, the “exclusive endorsement” will be extended to an additional service provider
Etc.	
PROBLEMS REPORTED TO THE MUNICIPALITY BY INDIVIDUAL ** RECIPIENTS	
<p>**In the normal run of business most such problems will be routinely dealt with by the call centre and the service provider without the PMU becoming involved – however, there will be cases where disputes arise when the recipient claims that the service provider has not met contractual terms and the recipient cannot get a satisfactory response from the service provider. These are the kinds of problems mentioned below:</p>	
Recipient claims that system does not operate according to specifications / or according to the level that the service provider sales-action promised	<ol style="list-style-type: none"> 1. PMU admin to liaise with service provider admin to ascertain facts and decide if there is merit in the complaint 2. In the first instance attempt to resolve complaint through requesting service provider action 3. Should complaint not be resolved deploy Inspector to investigate 4. If inspector confirms sub-standard performance forward inspector report to service provider for attention 5. Should complaint not be resolved take up issue at management level with service provider 6. Should complaint not be resolved assist recipient ONLY to the extent of providing recipient with inspector reports for recipient to use** in enforcing her rights according to her contract with service provider.

	<p>**This might involve a legal process but it is most likely that the support of the Inspectors reports will lead to the service provider meeting obligations before the legal process moves beyond the notification of intention stage.</p>
--	---

- a. Application process, interviews and appointment - signing of Code of conduct, reapplication intervals, removal from programme
- b. Optional collection through Municipality billing system
- c. Advertising campaign
- d. M&V – maintaining standards –PIRB, electrical inspectorate