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Power and Water Security Solutions

The SFPO Association Offers St Francis Bay Property Owners Solutions for Power and Water Security.

St Francis Bay continues to experience both power and water crises, with no end in sight. It is time that we, as property owners in St Francis Bay, each secure our own supply of power and water. Let's face the facts:

We cannot rely on Eskom for electricity for the foreseeable future. Likewise, we cannot rely on our region's dams to supply sufficient water.

The SFPO Association urges you to consider various options we have researched with local suppliers to secure your power and water supply for your property in St Francis Bay.

The SFPO Association has consulted several business owners that are active in St Francis Bay to compile this document.

This proposal includes the following sections:

- Power Security Options
- Water Security Options
- Power and Water Saving Devices
- Coordination & Administrative Services
- Tax Savings
- Insurance Considerations
- Next Steps

The SFPO Association has compiled a list of reputable local suppliers and installers. We will provide these if you want to establish power and water security on your St Francis Bay property.

Power Security Options

Several property owners who have installed a solar power system say the same thing:

"Since I installed a solar system on my property, load-shedding hasn't affected me. A business case justifying the cost of this power generation and storage system is irrelevant if the alternative is being without Eskom/Municipal electricity for 8-12 hours a day."

Power security includes power generation (solar panels), storage (lithium batteries), and conversion from DC to AC using an inverter. The amount of electricity you require determines the number of panels, the number of batteries and the capacity of the inverter.

The SFPO Association and the local suppliers mentioned above have identified 3 alternative solutions you can consider for your property. We have called these Options 1, 2 and 3. All these options include solar panels, an inverter, one or more lithium batteries, installing the system on your property, and registering

the installation with the Municipality. This registration will enable you to sell excess power back to the Municipality.

The cost of each option listed below is a general guideline. Once you have decided which option you prefer, a detailed quote will be requested from the supplier(s) you choose.

Option 1: R140,000

- 8 solar panels
- 1 inverter (5.5 KW, Single Phase, WiFi included)
- 1 lithium battery (5 KWH)
- AC surge protection
- Smart meter and modem
- Installation of this solution in your house
- Registration of the solution with the Municipality on your behalf

Option 2: R240,000

- 12 solar panels
- 1 inverter (8.5 KW, Single Phase, WiFi included)
- 2 lithium batteries (5 KWH each)
- AC surge protection
- Smart meter and modem
- Installation of this solution in your house
- Registration of your solution with the Municipality

Option 3: R340,000

- 16 solar panels
- 1 inverter (12 KW, 3 Phase, WiFi included)
- 3 lithium batteries (5 KWH each)
- AC surge protection
- Smart meter and modem
- Installation of this solution in your house
- Registration of your solution with the Municipality

Kouga Municipality's Purchase of Your Excess Power

We expect the Kouga Municipality to purchase excess household power to augment its electricity supply. This forms part of its renewable energy policy, designed to reduce its dependency on Eskom.

This solution will include the continued connection of your property to the Municipality's electricity grid (unless you specifically want to go off-grid):

- As a backup to your own supply.
- Should the solar panels fail to supply enough power due to weather conditions.
- As a customer for the excess power your solar panels generate once your batteries are fully charged.

Thatched Roofs

Solar panels are not allowed to be mounted on a thatched roof.

If you have a thatched roof, the solar panels can be mounted on an alternative structure such as a carport, veranda roof (non-thatch), or a standalone frame on your property.
We can get a quote for these additional structures for you.

Water Security Options

The Kouga Municipality depends on dams controlled by Nelson Mandela Bay Metro for its primary water supply. The Kouga Municipality has developed a water supply from boreholes, but this is not enough. St Francis Bay does get sufficient rain to justify installing a rain harvesting system. This system includes guttering, pipes moving rainwater from the gutters to the storage tanks, storage tanks, filters including radiation, and a silent electric pump.

Quote from an Existing User

"I installed a 15,000l water storage tank system 2 years ago when I replaced my thatch roof with a shingles roof. I added a further 6,500l a year later as I decided to capture water from other parts of my roof and balcony structures. I have had to use Municipal water on only two occasions when my tanks reached their minimum level. I also installed water-saving devices on all my taps, except the bath and kitchen sink, reducing my water consumption by about half. The water quality is better coming directly from rainwater."

Property owners have a number of water supply options available to them, including rain water, wells, boreholes, Municipal water, and desalination. We have focussed on:

- Rain water harvesting
- Ground water harvesting

We suggest that the property owner uses the Municipal water supply as a back-up should they require more water than that provided by their own sources.

Rain Water Harvesting

Rain water harvesting requires a roof with gutters to collect the water. Some roofs do not have gutters, such as thatch, but balconies are an alternative.

As a broad guideline: 1m^2 of roof/balcony/patio will collect 1 litre of water from 1mm of rain. If you have a 200m^2 roof/balcony/patio collection area, and you receive 30mm of rain, you will collect approximately 6,000 litres of water. St Francis Bay gets, on average, 600mm of rain a year, which will provide some 120,000 litres of water a year for a 200m^2 water collection area. If you have a 400m^2 collection surface area, you will double these volumes to 240,000 litres of water annually.

The amount of storage you decide to install depends on the size of the water collection area, the number of people in your household, and the amount of water you typically use.

The range of costs quoted below is a broad guideline. A cost range has been used to reflect those properties requiring more or less materials such as piping, guttering, pump size and amount of plumbing work to integrate this system into an existing plumbing system. For example, the actual cost will depend on the amount of guttering and piping required to capture the rainwater and move it to the tanks.

These are approximate costs.

Option 1: R56,000 - R78,000

- 10,000l of storage
- 3 filters & 1 radiation unit
- 1 silent electric pump
- Gutters (if required)
- Pipes connect gutters to tanks
- Connection into existing household plumbing
- Overflow outlet for excess water
- Valve controlling incoming Municipal water supply as a backup to the tanks when the tanks' water level reaches its minimum level

Option 2: R62,000 - R84,000

- 15,000l of storage
- 3 filters & 1 radiation unit
- 1 silent electric pump
- Gutters, if required
- Pipes connect gutters to tanks
- Connection into existing household plumbing
- Overflow outlet for excess water
- Valve controlling incoming Municipal water supply as a backup to the tanks when the tanks' water level reaches its minimum level.

Option 3: R68,000 – R90,000

- 20,000l of storage
- 3 filters & 1 radiation unit
- 1 silent electric pump
- Gutters, if required
- Pipes connect gutters to tanks
- Connection into existing household plumbing
- Overflow outlet for excess water
- Valve controlling incoming Municipal water supply as a backup to the tanks when the tanks' water level reaches its minimum level.

Groundwater Harvesting

Shallow groundwater is plentiful and accessible in many areas in St Francis Bay via a wellpoint. Wellpoints are mini boreholes with a maximum depth of around 10 metres. Wellpoints produce, on average, around 1 300 litres per hour. Some wellpoints can run for hours, while others must be carefully managed, particularly in the Canals area.

A wellpoint is a short pipe, typically around 3 – 10m long, inserted into the water table, with a surface pump which pulls the water up the line using a surface pump. A borehole is much deeper than a wellpoint, usually twenty to hundreds of metres deep, with a pump at the bottom, pushing the water to the surface. Boreholes can deliver thousands of litres of water.

One cubic metre of saturated soil contains approximately 350 litres of water. On a one thousand square metre plot, the first metre of saturated soil below the water table has 350 000 litres of water. This is the water that is extracted through a wellpoint. The extracted water is replenished after rainfall.

Fresh groundwater can be accessed via a wellpoint located even close to the shoreline or canal edge. Fresh water is less dense than brack water, which is less dense than salt seawater. The freshwater rises above the brack water, and care needs to be

taken to access only the fresh water when installing the wellpoint. In some cases, the groundwater should be used only as a backup for rainwater and municipal water, not as the primary source of water)

The water table is regularly recharged by rainfall.

Wellpoint water can be connected directly to an irrigation system or pumped into a tank or several tanks. The tanks can be configured to hold roof, municipal, and wellpoint water. Blending the wellpoint water and the rainwater improves the quality of the wellpoint water, requiring simpler filtration.

A laboratory water analysis is obtained to inform the design of a filtration system for using the wellpoint water, or the blended water, in the home.

The tank water is pumped through the filtration system into the home plumbing. One can also direct Municipal water through the filtration unit.

Many St Francis Bay homes and guest houses benefit from this system and no longer depend on Municipal water. In addition, the system can connect to a power backup system, providing an uninterrupted non-municipal water supply.
Systems can filter even brackish canal water for home use and drinking.

Approximate costs

Option 1 : R20 000

- Wellpoint
- Pump
- Pump controller
- Cover
- Hose connection

Option 2 : R50 000

- Wellpoint
- Tank
- Basic Filtration System
- Home Connection

Option 3 : R90 000

- Wellpoint
- Tanks
- Complex Filtration System
- Home Connection

More sophisticated, but more expensive options include boreholes and desalination plants. These can be discussed with your suppliers if of interest to you.

Power & Water Saving Devices

Gas Geysers

If your house has electric-powered water geysers, you should consider replacing them with gas-heated water geysers.

A gas geyser installation includes:

- Gas installation
- Gas geyser linked into the house (1)
- Plumbing to link the water supply through the gas geyser into the house External electrical point for the gas geyser
- Gas cylinders (2) and Gas cage.

Below are some gas geyser options, but let us know if you would like a quote for replacing electric geysers with gas geysers.

Option 1 : R42,000 – R48,000

Replacing 1 electric geyser with 1 gas geyser

Option 2 : R84,000 – R96,000

Replacing 2 electric geysers with 2 gas geysers

Option 3 : R126,000 – R144,000

Replacing 3 electric geysers with 3 gas geysers

Electric Geyser Controllers

Your electrical geyser is your biggest consumer of electricity in your house. The Geyser Controller is an exceptional piece of locally designed technology. So simple in its operation - it uses solar panels to power a standard geyser element.

Under normal operating conditions, it will deliver more than 90% of your hot water requirements free of charge using only the sun's energy. In addition, it is designed to be easily retrofitted to an existing electrical geyser system. It requires no unsightly solar water heating tubes on your roof – all the heating takes place inside your standard geyser.

The Geyser Controller allows the ultimate flexibility in using the sun (primarily) as well as Municipal/Eskom power (only when required) to ensure you have hot water on demand – even in the early hours of the morning before the sun comes up - at a fraction of the cost of a traditional geyser system. A user-friendly app lets the property owner control the geyser's settings to suit their lifestyle and hot water requirements. No moving parts mean the system will last for 15 years with minimal if any, maintenance required.

If you have a limited budget and want a high-impact solar solution that works, the Geyser Controller is a good solution. It will allow you to recover your initial investment in 2 to 3 years, and continue to deliver 90% of your hot water requirements for years afterwards at zero cost to you.

Quote from an existing user:

"Since I installed it, the electrical bill for our family of four has reduced from R3 000 pm to around R1 600 pm – just by retrofitting the Geyser Controller to our existing geyser."

Key Features

- Uses standard heating elements.
- Outperforms solar thermal heaters.
- Operates in inclement weather.
- Easy installation with no plumbing required.
- Designed for a retrofit.
- No need to replace the element or thermostat.
- Low heat dissipation.
- Efficiency is greater than 90% on solar.
- Mains override if no solar is present.
- Accurate digital temperature control.
- Wall mounted.
- External timer included.

Data collected for the product shows that a reasonable expectation for a house of 2 adults and 2 children, it will reduce your electrical bill by R500 to R1 000 per month.

The cost installed is **R25 000, excluding VAT** and installation is less than a day.

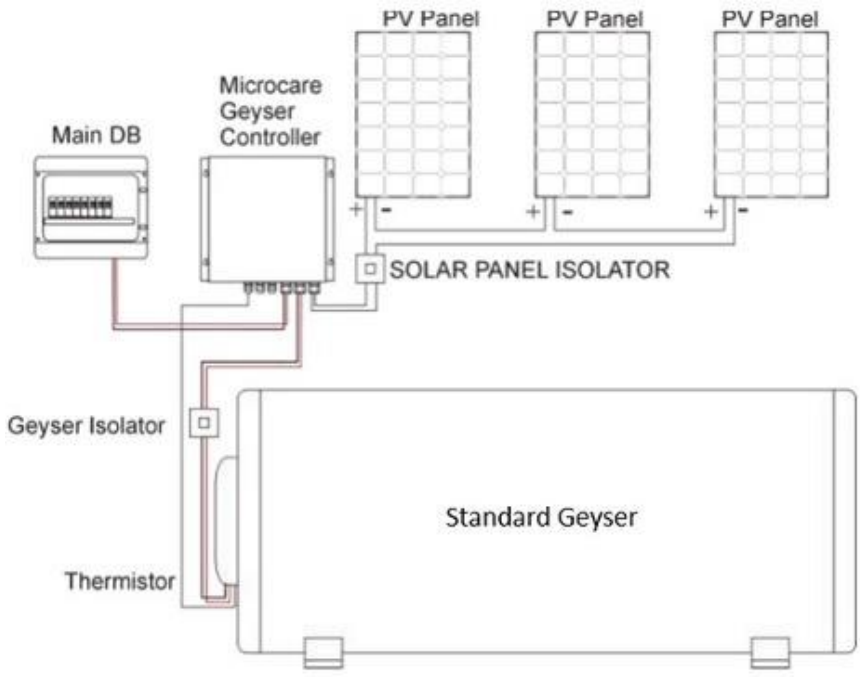

Diagram showing the geyser controller

Water Tap Restrictors

You can reduce water flow through most of your taps by installing a device that screws into the end of the tap. As a result, the water comes out as a spray rather than a jet of water. We would recommend installing these on all taps except baths and sinks. You can save up to half of the water you typically use.

Let us know if you would like a quote for installing these devices.

LED Lights

Convert all lights in your property to LEDs. LEDs typically use 20% or less electricity than incandescent and fluorescent light bulbs.

Let us know if you would like a quote for replacing your lights with LEDs.

Coordination & Administration Service

The SFPO Association has asked Mr Nigel Aitken to provide you with a "coordination and administrative service" to:

- Assist you with choosing the option best suited to your property and budget.
- Source an Engineer's assessment that your roof can carry the weight of the solar panels.
- Request quotes from suppliers (selected from a list of local suppliers).
- Discuss and agree with you your choice of supplier/quote.
- Arrange for the installation of the solution.
- Arrange the testing and handover from the supplier to you, including loading the power app on your phone, so you can monitor your power system.
- Ensure the supplier completes the SSEG, submits it to the Municipality for registration, and provides you with proof of registration.

This is necessary:

- For the Municipality to be satisfied that the power system has been installed as per Municipal regulations.
- If you wish to sell excess power back to the Municipality.
- For your Insurance company, as it is also likely to require that your power system has SSEG registration, otherwise it could refuse to cover any claim associated with the system.

This "coordination and administrative service" will be paid for by the supplier who will add a once-off fee of 2% of project price, capped at R3,000 for each project. A project will typically be a power solution, or a water solution, or a power or water saving device project covered by a specific quotation from a supplier that is accepted by the property owner.

You are welcome to deal with the suppliers directly yourself. However, we know this is often difficult for property owners who reside elsewhere and use their St Francis Bay properties for holidays.

Neither the SFPO Association nor Mr Aitken assumes any responsibility or liability for the solution and installation provided by the chosen supplier. The responsibility and liability for the contracted solution are directly between the supplier and yourself as the property owner.

Tax Savings

SARS 12B tax allowance incentivises business and residential property owners to install solar power solutions to supply power to their properties.

1.1 Businesses can claim back 125% of the cost of the Solar power solution the business owner installs on the premises in the current year (can be carried over).

1.2 Residential property owners can claim back 25% of the cost of the solar panels installed on the premises, capped at a maximum claim of R15,000.

Insurance Considerations

It is our understanding that a property owner must register the solar installation with the Kouga Municipality to ensure it complies with Municipal specifications. Insurance companies have indicated that if a solar system is not registered with the local Municipality, it will result in the Insurance company refusing to pay out a claim on the property resulting from the solar system.

Risk Management When Considering Renewable Energy and Gas Alternatives

Here are a few important insurance/legal considerations which cannot be left unchecked.

- Insurance policies cannot respond to something illegal.

- Please ensure that photo voltaic (solar) and gas installations strictly adhere to the applicable South African National Standards (SANS) codes.
- Electrical work must have a corresponding Electrical Certificate of Compliance (ECOC).
- Any gas installations also need the relevant Certificate of Compliance (COC).
- Any installations must be carried out and signed off by qualified and licensed persons. These persons should also have their own professional indemnity insurance.
- When it comes to solar installations, please ensure that you obtain the necessary engineers' sign-off where required. For example, adding a large amount of weight to your roof could push it beyond the safety parameters on which it was initially engineered and erected.
- Advise your insurance broker or insurer of the additional value at risk due to your new installation. Make sure you understand what cover they will provide and at what cost. Check on any exclusions and try to mitigate further exposure where possible.
- It would be best practice to ensure that any contractor you employ to work on your premises has an active contractor all risks and liability insurance policy, and professional indemnity cover, where necessary.

Next Steps

If you, as a property owner, are interested in installing the Power Security solution, the Water Security solution, and/or the power and water saving devices, then please call Lyn Aitken at the SFPO's office on 042-294-0594 or 082- 777-5624 or email Lyn at info@sfpo.co.za

Lyn will ask Nigel Aitken to contact you directly to discuss the solution(s) you want to install. Nigel will be contracted to the SFPO Association to assist you with choosing and installing these solutions.

Or

Click below for specific assistance

Power Solutions

Water Solutions

General Assistance

Suppliers: Local to St Francis Bay

The SFPO Association has selected the following suppliers to launch this Power and Water security campaign to install these solutions for you. We have identified those suppliers who have a good track record of delivery in the St Francis Bay area, and can cope with the potential demand for these solutions from property owners in St Francis Bay. This list is not exclusive, and we will add suppliers to this list as and when they are identified or contact us, and can demonstrate a reliable track record of delivery.

Power Security:

Kouga Renewables - (Frank Ellis, Andrew Steen)
https://kougarenewables.co.za/

Genergy - (Kevin Slabbert)
https://genergy.co.za/

Water Security:

St Francis Irrigation (Warren Jones)
https://stfrancisirrigation.co.za/

Trevor Wright
trevoralanwright1953@gmail.com

Gas Geysers:

Meikles Locksmith and Gas
https://www.facebook.com/MeiklesLocksmithGas/

BUCO St Francis Bay
https://www.buco.co.za/default/stfrancisbay

Buildit St Francis Bay
https://www.buildit.co.za/Stores/View/Build-it-St-Francis-Eastern-Cape

Electric Geyser Controllers:

Genergy - (Kevin Slabbert)
https://genergy.co.za/

Insurance Considerations:

Frank Harpur
frank@harpur.co.za

Water Tanks:

BUCO

Buildit

St Francis Irrigation (Nel Tanks)

Water Restrictors:

Suppliers will be identified

LED Lights:

Suppliers and Electricians will be identified

Thank You

Let's Work Together

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