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# Powering The Federated States of Micronesia to an Exciting Future!

***This paper will address the current energy status and what the future holds for the remote and isolated Islands.***



# Isolated and Outer Islands of Micronesia

- FSM faces a significant challenge of delivering electricity to people living on outer islands.
  - Low populations, large distances, Poor infrastructure contribute to these challenges.
  - FSM is witnessing the effects of man-made Climate Change and bearing the financial impacts of these changes. (*shore line erosion*)





# What the Future Holds

- FSM is highly exposed to the ravages of Climate Change, including sea level rises, increased ocean acidification, more frequent droughts, flooding, and Hurricanes;
- The human consequences from these ravages particularly in the outer Islands is:
  - Loss of livelihood
  - Deficient energy availability even for modest needs
  - Increased health risks due to polluted potable water
  - Relocation to other higher islands
  - Social and community disruption

# Is There Hope? -----> "YES"

- The FSM has developed policies that will help to mitigate Climate Change by:
  - significantly reducing the importation and the burning of Fossil Fuels,
  - improving the efficiency of Energy utilisation,
  - Increasing the adoption of renewable energy both into the state utility grids and in remote island locations, and
  - ensuring the implementation of the FSM Energy Master Plan.

## EMP PROJECT ACHIEVEMENTS

### ACHIEVING ENERGY MASTER PLAN TARGETS

Energy Master Plan to 2024	Pohnpei	Chuuk	Yap	Kosrae	FSM
Power Completed/Ongoing (MW)	12.00	4.20	5.80	3.00	20.80
Power Target (MW)	12.90	5.00	3.30	4.60	25.80
% Achieved	93%	84%	176%	65%	81%

Description	Power from RE (MW)	Power from Diesel (MW)	% RE	Investment* (\$ millions)
Completed and Ongoing projects by the end of 2024.	12.05	13.73	47%	95.20
Pipeline (proposed or conceptualized projects)	3.90	0.00	100%	12.90
Total (Projects)	15.95	13.73	54%	108.10



# Focusing on the FSM Outer Islands

- There are 62 remote populated outer islands with a population of 41,212 and they will all receive electricity from renewable energy.
- We will need to install many renewable energy systems per year for the foreseeable future in order to meet the FSM energy policy of 100% access to electricity.
- This will require grants from international donors totalling more than US\$120M.
- The 2018 FSM Energy Master Plan has allowed the Government to access more than US\$100M from donors most of which will be directed to the installation of renewable energy in the outer Islands.



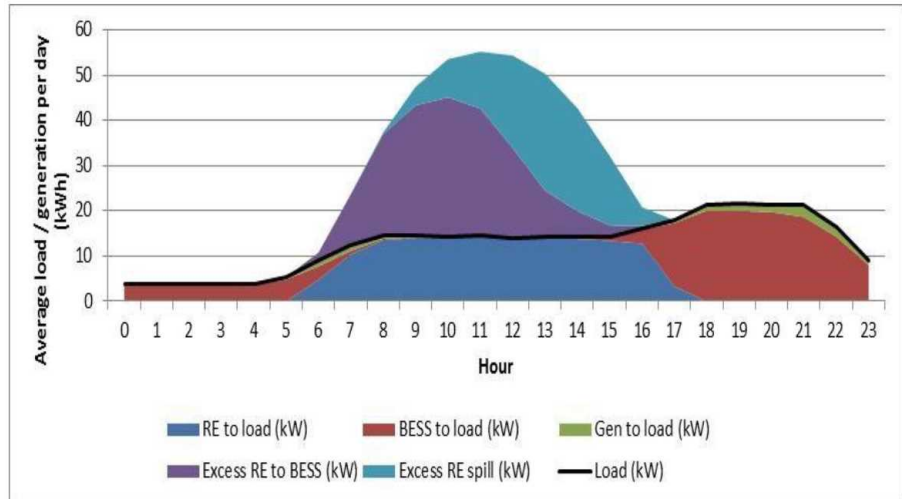
# Example of a Remote Outer Island

- Satowan atoll



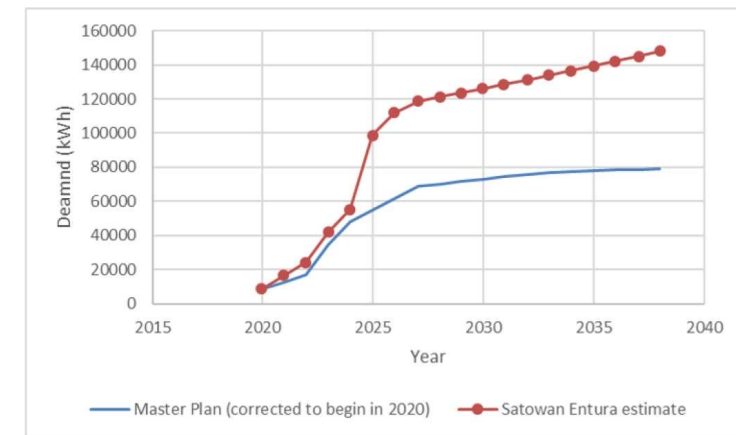


# Satowan The Solution – Cost > US\$2M

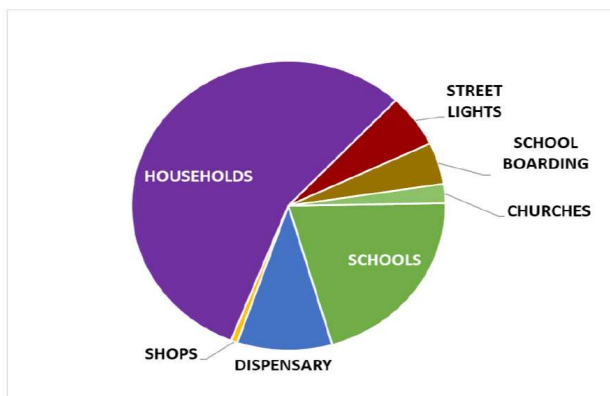


Households & connections	116
Estimated system daily load (2027)	350kWh/day
Estimated system peak load (2027)	55 kW

## PREDICTED USAGE UPTAKE CURVE



## GROUPS USING ELECTRICITY



## Solar

220 to 250 kW, mounted on rooftops at government owned sites as first priority.

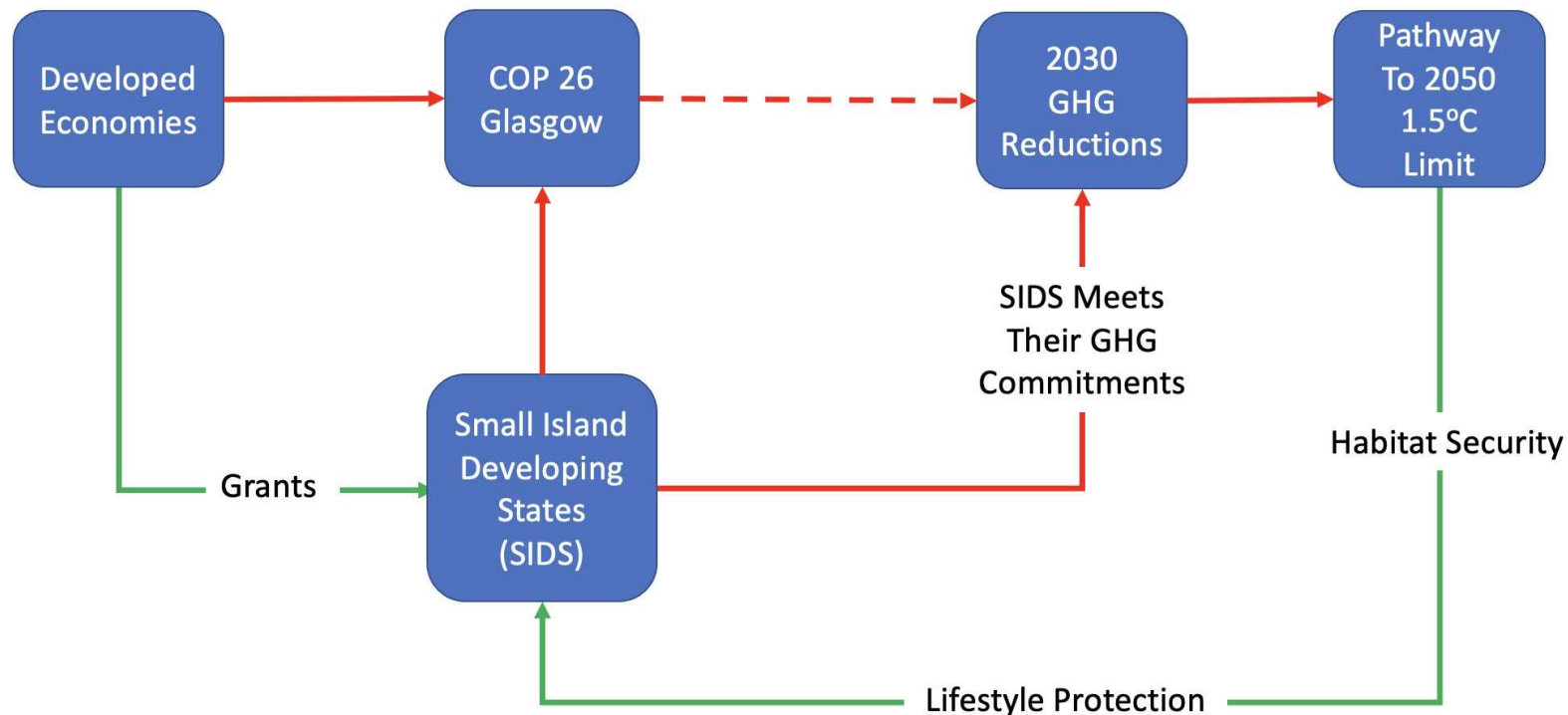
## Battery

400 to 500kWh (around 20ft by 8ft of space)  
Located within Municipal Building.



# Conclusions for an “Exciting Future”

- Small Island Developing States Future is dependent on the worlds most advanced societies implementing their COP-26 commitments fully with increased urgency.



# What is the Exciting Future?

- A world that is habitable and sustainable for our children and grandchildren and for many generations to come.
- Surely this is an **Exciting Future!**

Thank You