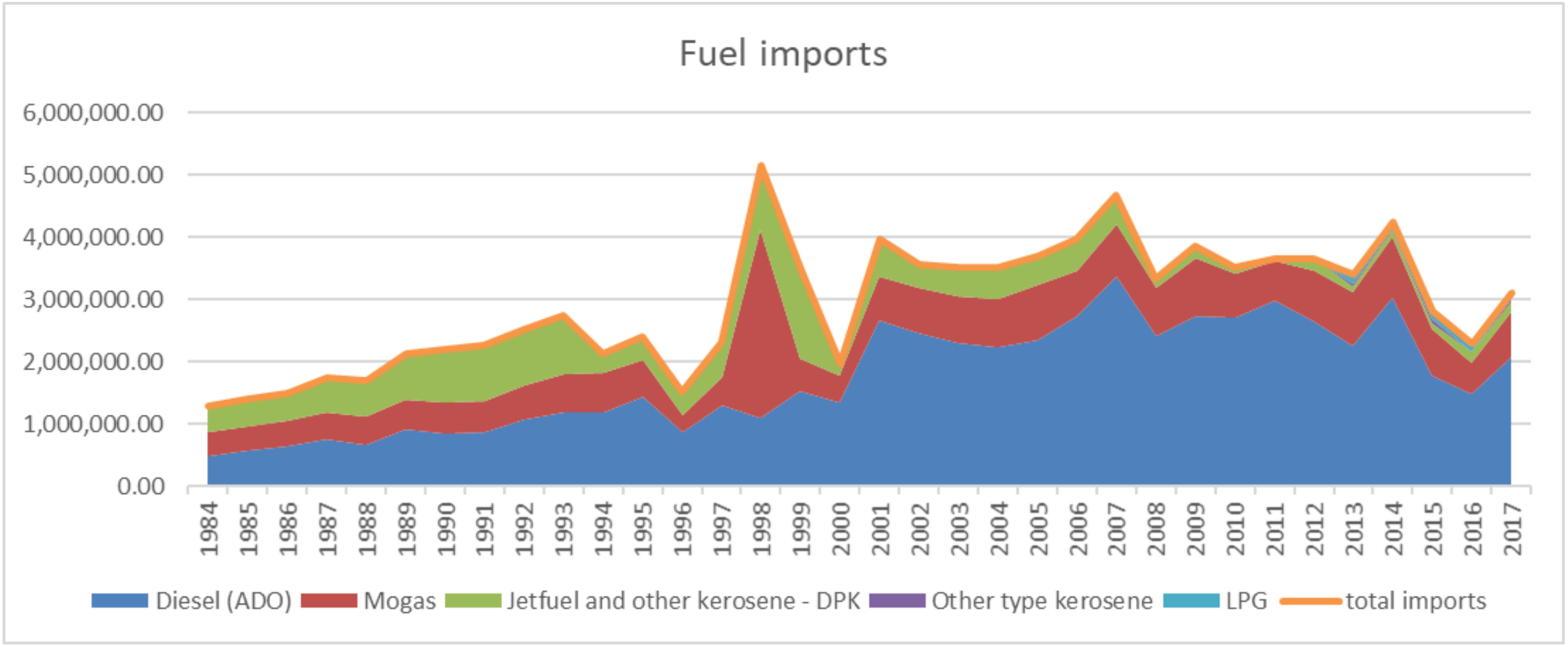
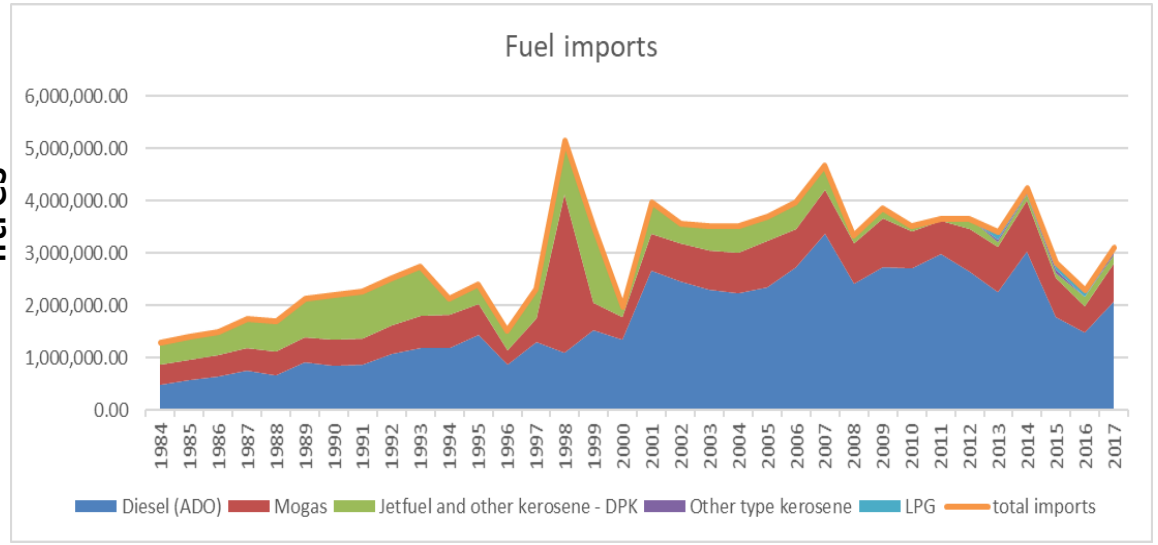
TUVALU NATIONAL ENERGY SITUATIONAL ANALYSIS

FUEL IMPORT TREND 1984-2017



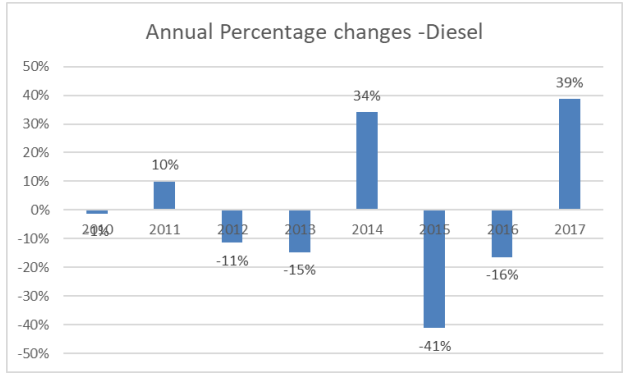
Whats our situation?

FUEL IMPORT TREND 1984-2017



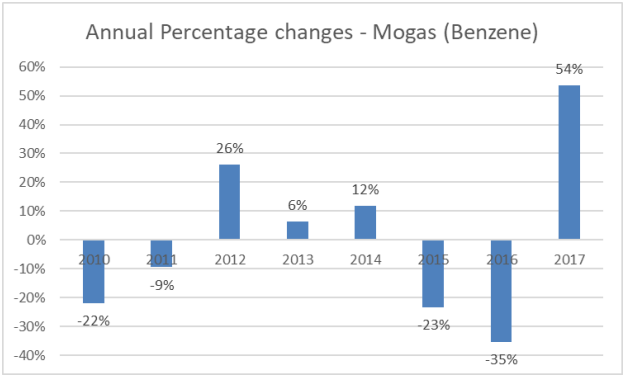
Indicative findings - 2018 data collection mission for Policy Review
Source – Fuel price monitoring data, Department of Energy

For the past 10 years, overall fuel import have decreased.



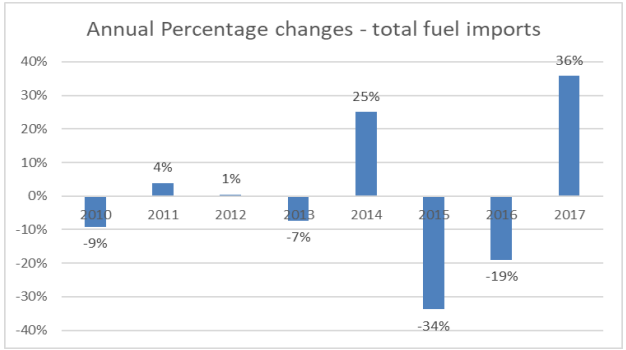
% change 2010 -2017: -24%

Trend of diesel fuel import from 2010 to 2017 have decreased by 24%



% change 2010 -2017: 4%

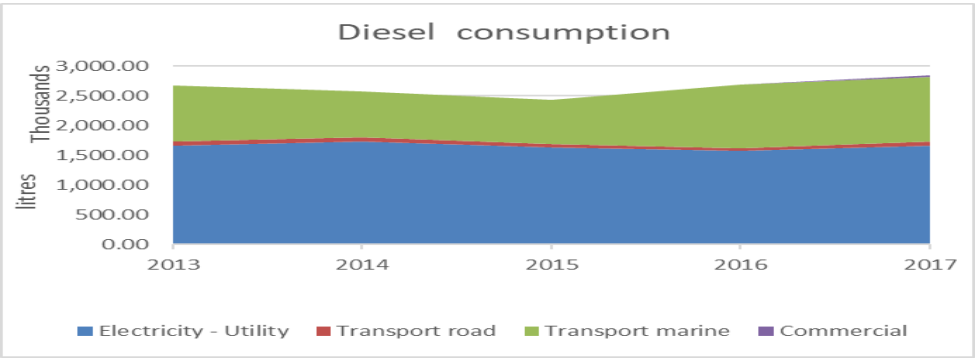
Trend of bensene fuel import from 2010 to 2017 have increased by 24%



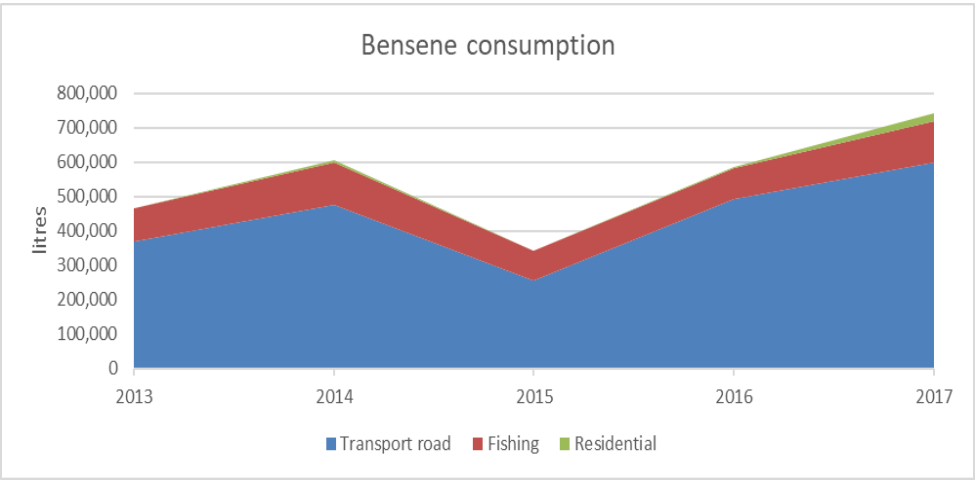
% change 2010 -2017: -12%

Trend of total fuel import from 2010 to 2017 have decreased by 12%

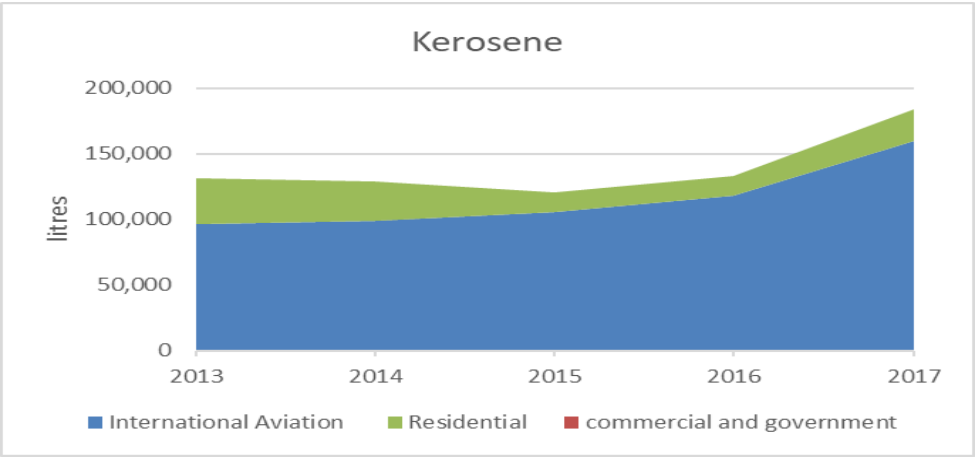
FUEL CONSUMPTION BY SECTOR TREND 2013-2017



1. Electricity sector shows a slight growth of 0.7% from 2013 to 2017. Noting the increasing trend in RE installation with TEC, The trend till 2019 is foreseeing a decrease in growth.
2. Transport sector particularly Maritime shows significant growth of 15% from 2013 to 2017.



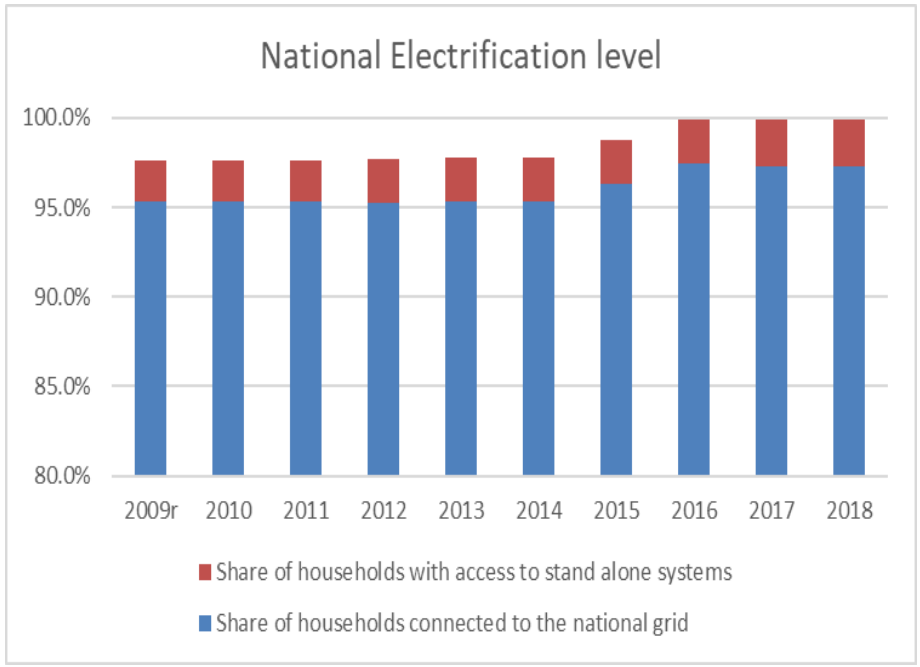
1. Road transport sector continue to follow increasing trend over the years with the growth from 2013 to 2017 reflecting 63%.
2. Fishing Sector also follow increasing growth from 2013-2017 reflecting 22.1% growth.



1. Kerosene consumption for international aviation have been increasing significantly over the years. Growth from 2013 to 2017 increased by 66%. Noted growth is linked to the increase in international flights to Tuvalu.

Indicative findings - 2018 data collection mission for Policy Review
Source – Fuel price monitoring data, Department of Energy

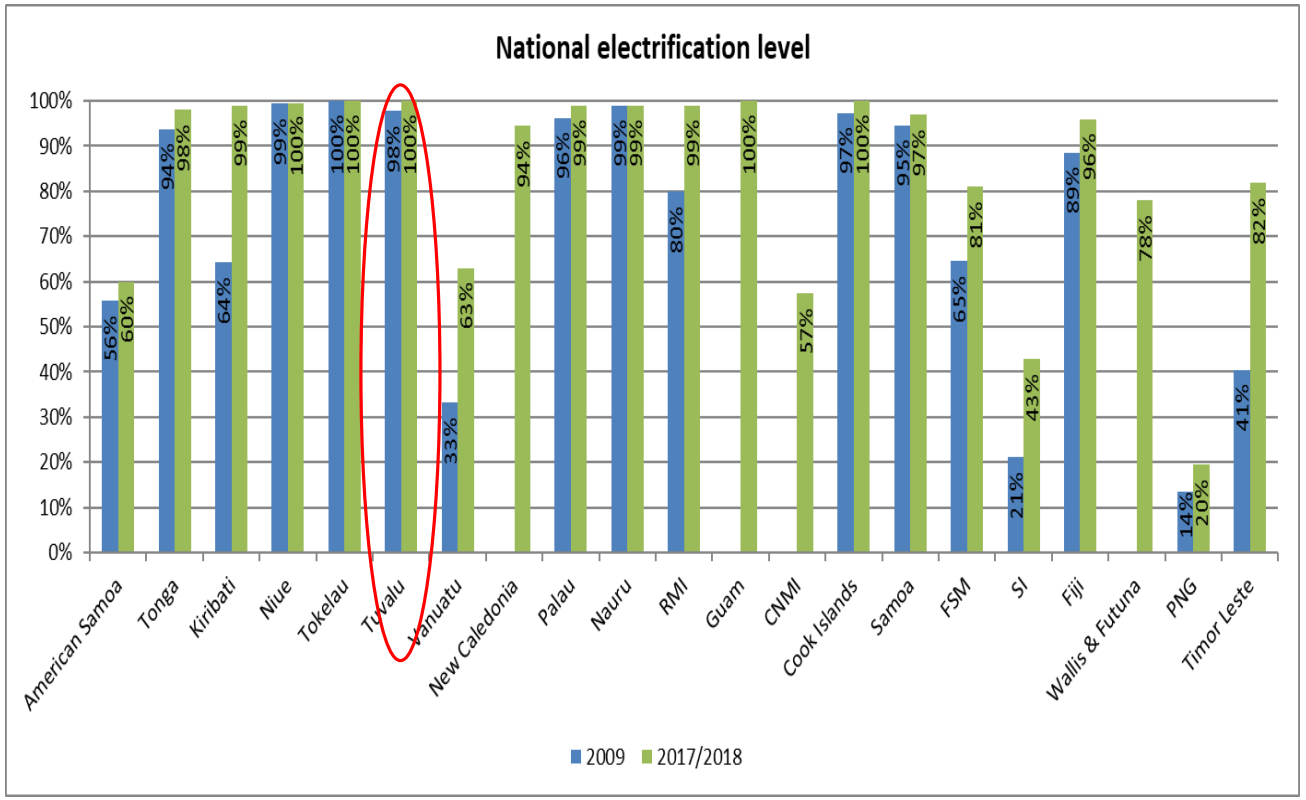
NATIONAL ELECTRIFICATION LEVEL – *TRACKS SHARE OF HH THAT HAVE ACCESS TO SOME FORM OF ELECTRIFICATION – GRID AND OFF-GRID*



Tuvalu has achieved 100% access since 2017.

Next Policy consideration:

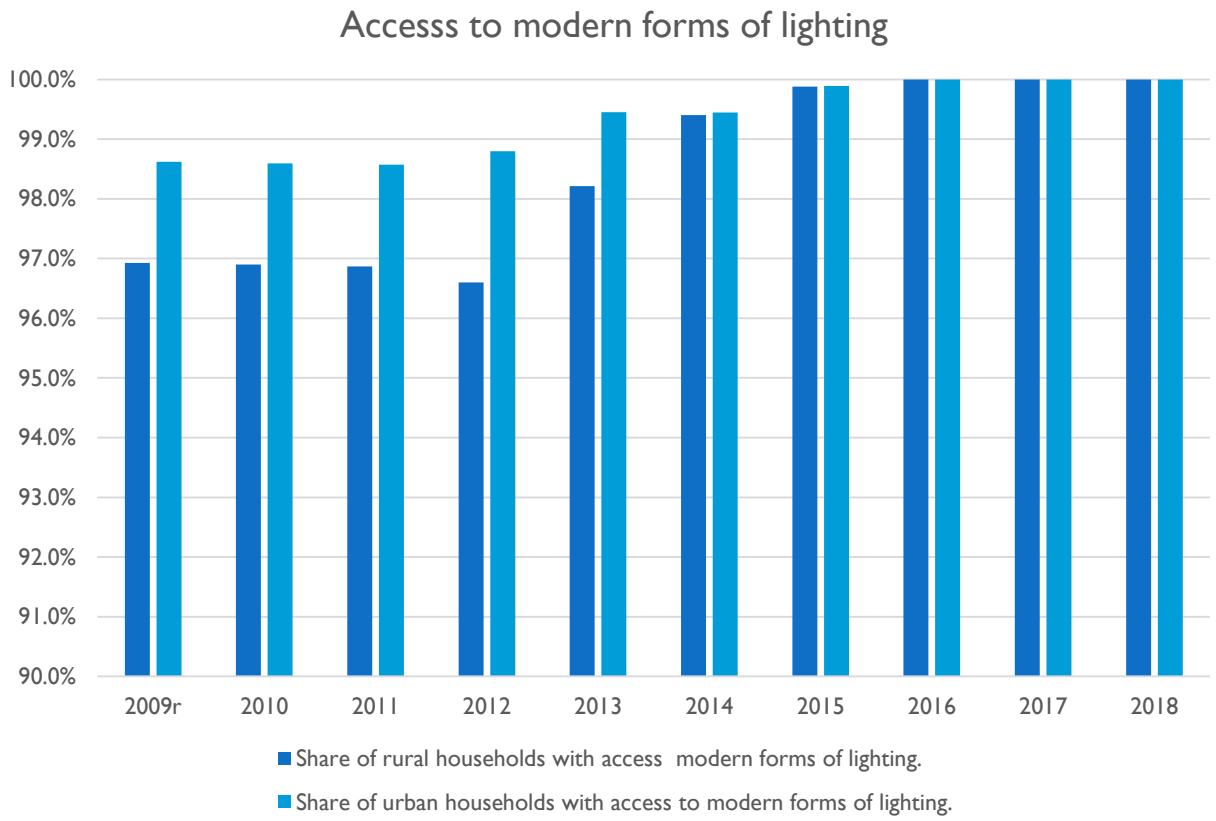
- Maintaining access level @ 100% by 2030
  - Disconnected customers
  - New customers

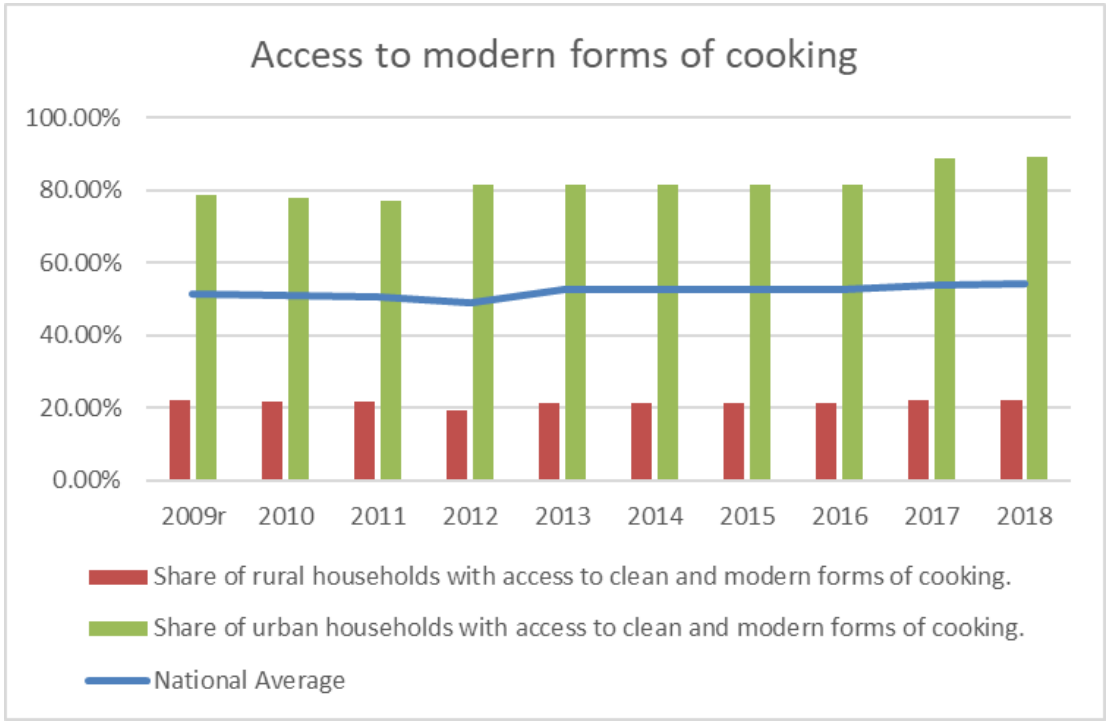


Tuvalu is one of the countries in the region that has achieve SDG 7.1 on access

Data Source:- 2012 census, estimates based on Project updates from TEC.

ACCESS TO MODERN FORM OF ENERGY





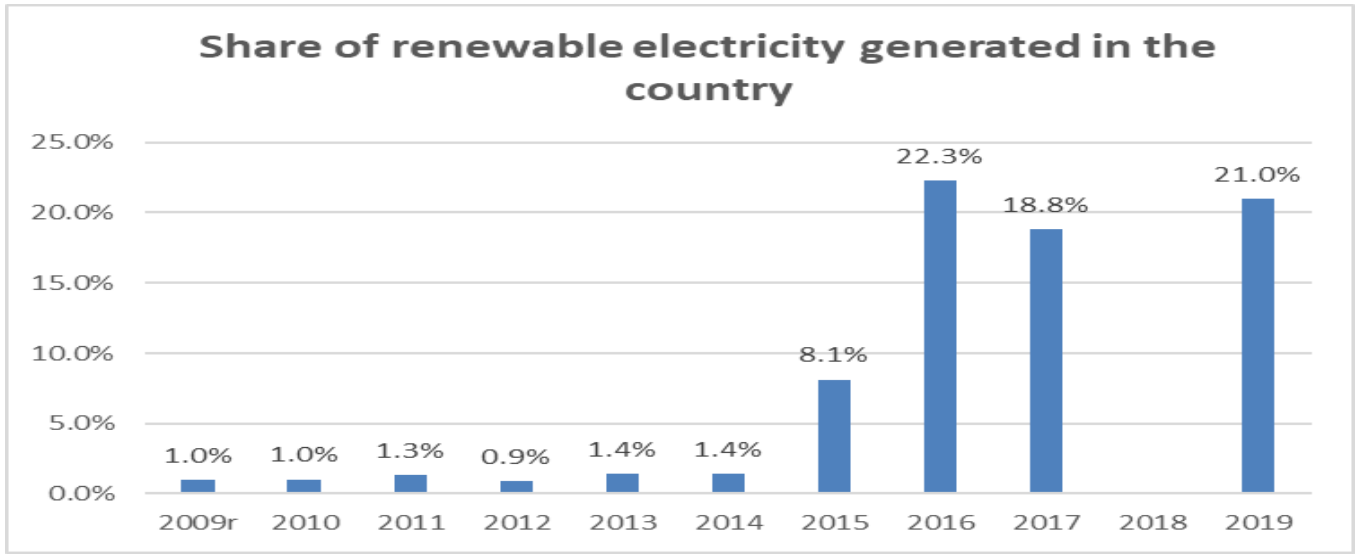
Next Policy consideration:

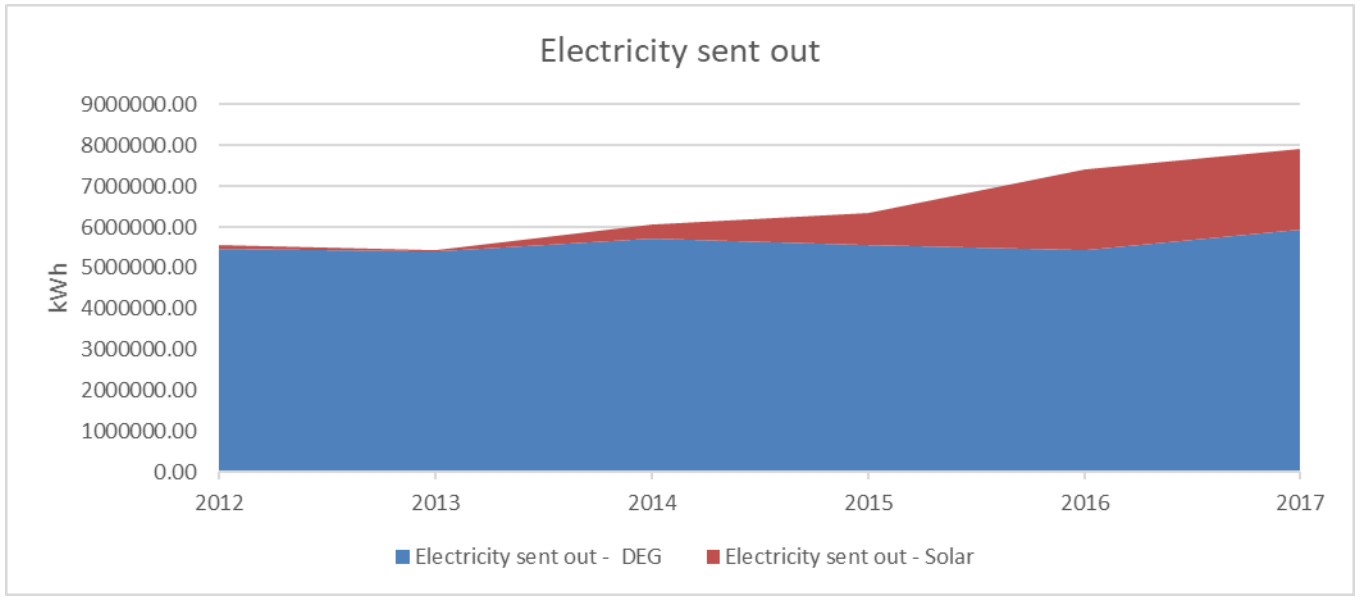
- Increasing access to modern and efficiency cooking sources
  - Bio-gas
  - Switch from Kerosene to LPG stoves
  - Efficient Biomass stoves – rocket fire stoves

Tuvalu's access to modern and clean cooking energy sources is around the 54% range with Funafuti at around 85% and the outer islands standing at around 22%

Data Source:- 2012 census, SPC estimates other years

Tuvalu's electricity generation from 100% diesel to 100% renewable energy by 2030.

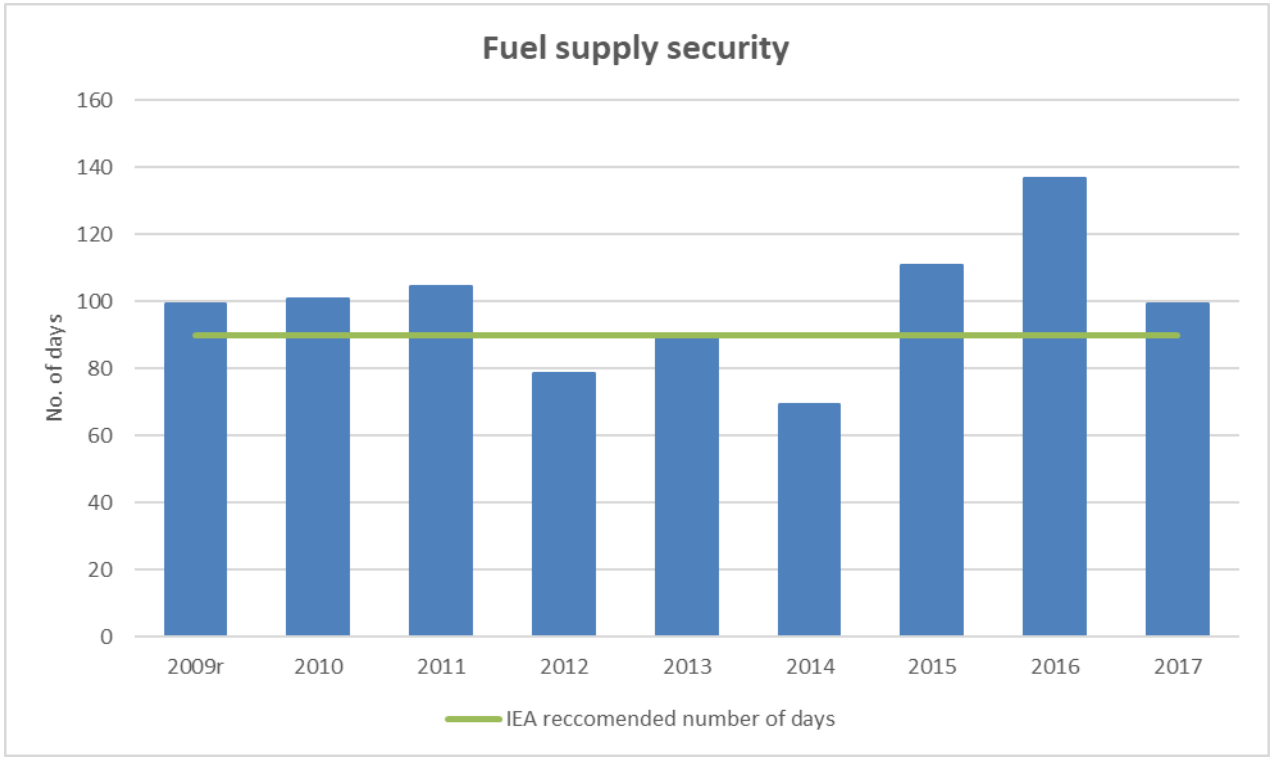


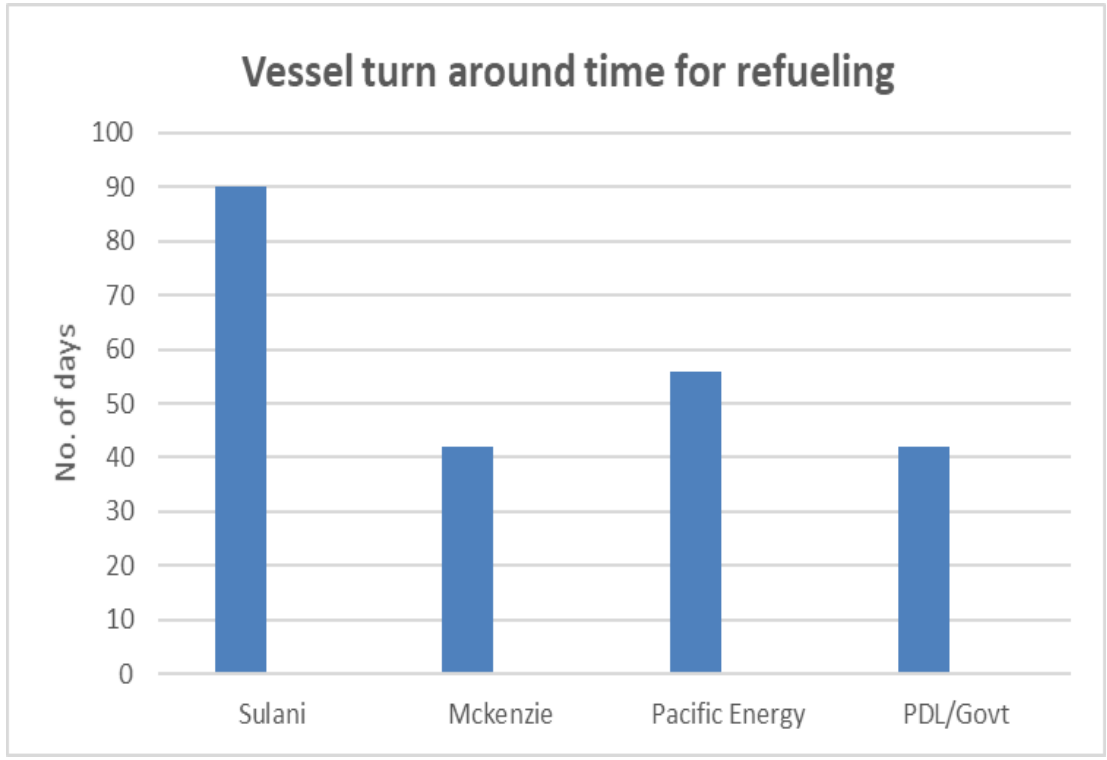


Next policy consideration;

- Implement the solar roof top initiative
- Fast track WB projects (solar installation and wind)
- Net metering legislation
- Battery back storage
- Development of an Energy act and regulations
- Fiscal incentives/loans for small scale RE (solar installations)
- Resilience of energy infrastructures

FUEL SUPPLY SECURITY – NUMBER OF DAYS A COUNTRY CAN KEEP OPERATING IN AN EVENT OF A FUEL SUPPLY DISRUPTION



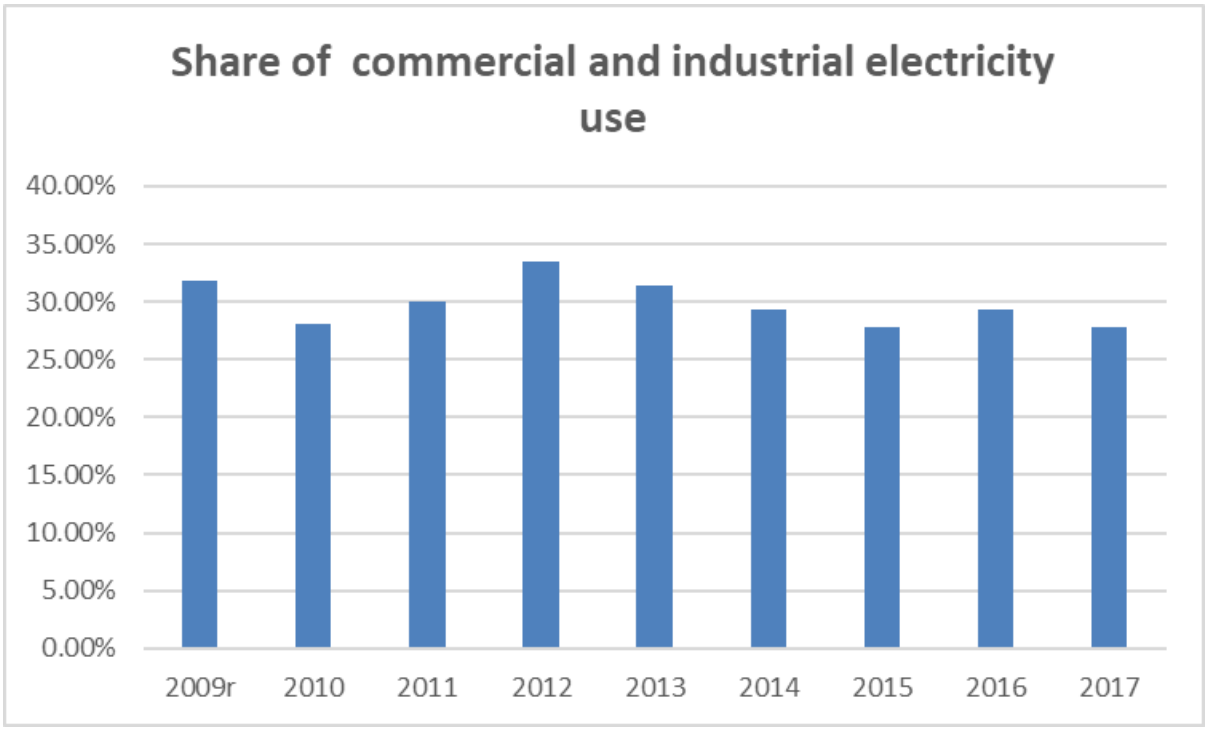


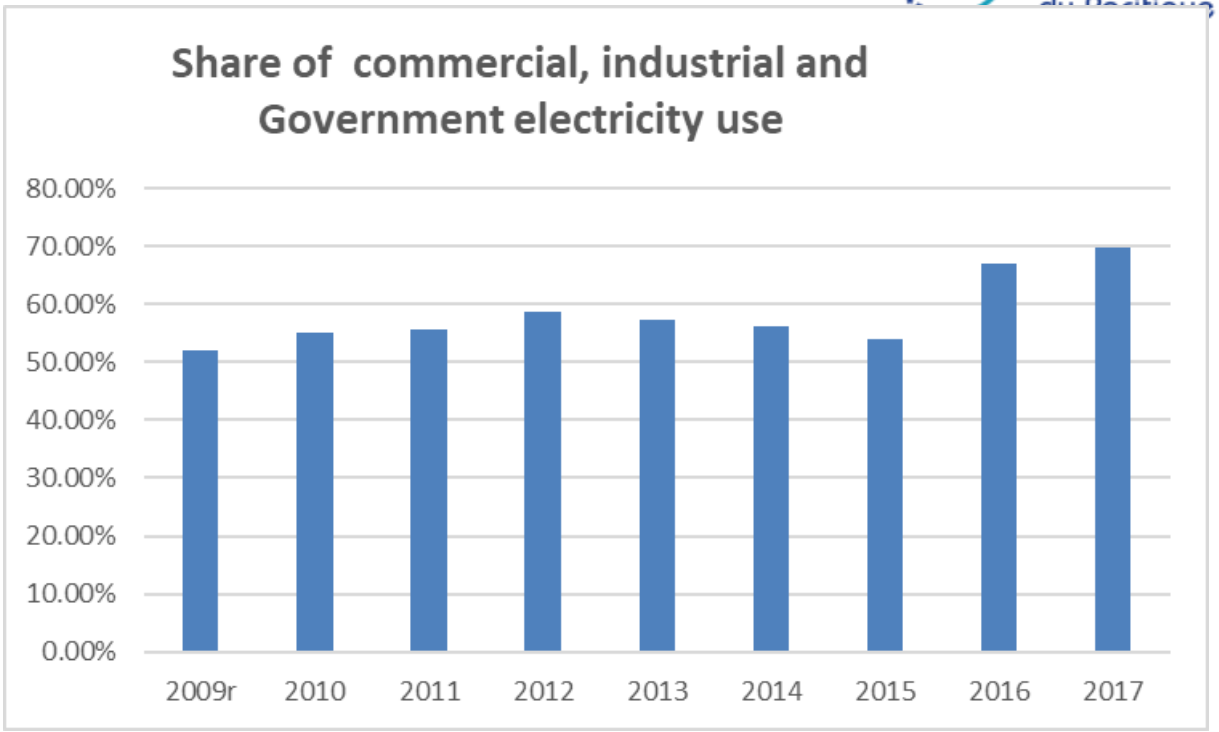
Next Policy consideration:
Strengthen Tuvalu's resilience against existing fuel supply security considering

1. Disaster preparedness – security of supply
2. Formal arrangements in place to address fuel supply disruption situation
3. Safety and compliance

Sulani mainly imports LPG
Mckenzie imports ULP and LPG
PE imports of Diesel, ULP and Kerosene
PDL/Govt – import of Jet fuel for Aviation

PRODUCTIVE POWER USE – TRACKS SHARE OF ELECTRICITY SOLD TO NON RESIDENTIAL CUSTOMERS

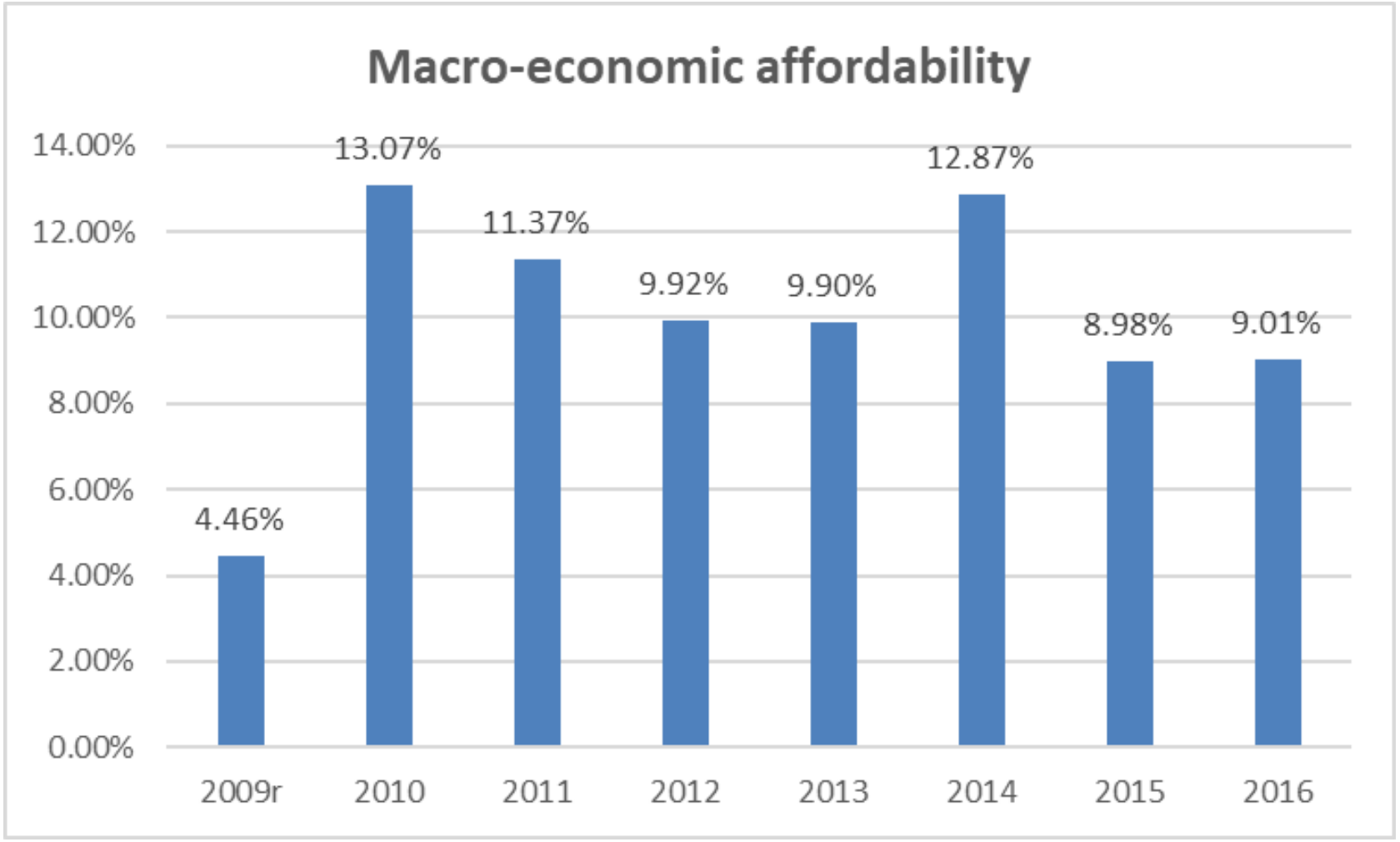




Next Policy consideration:

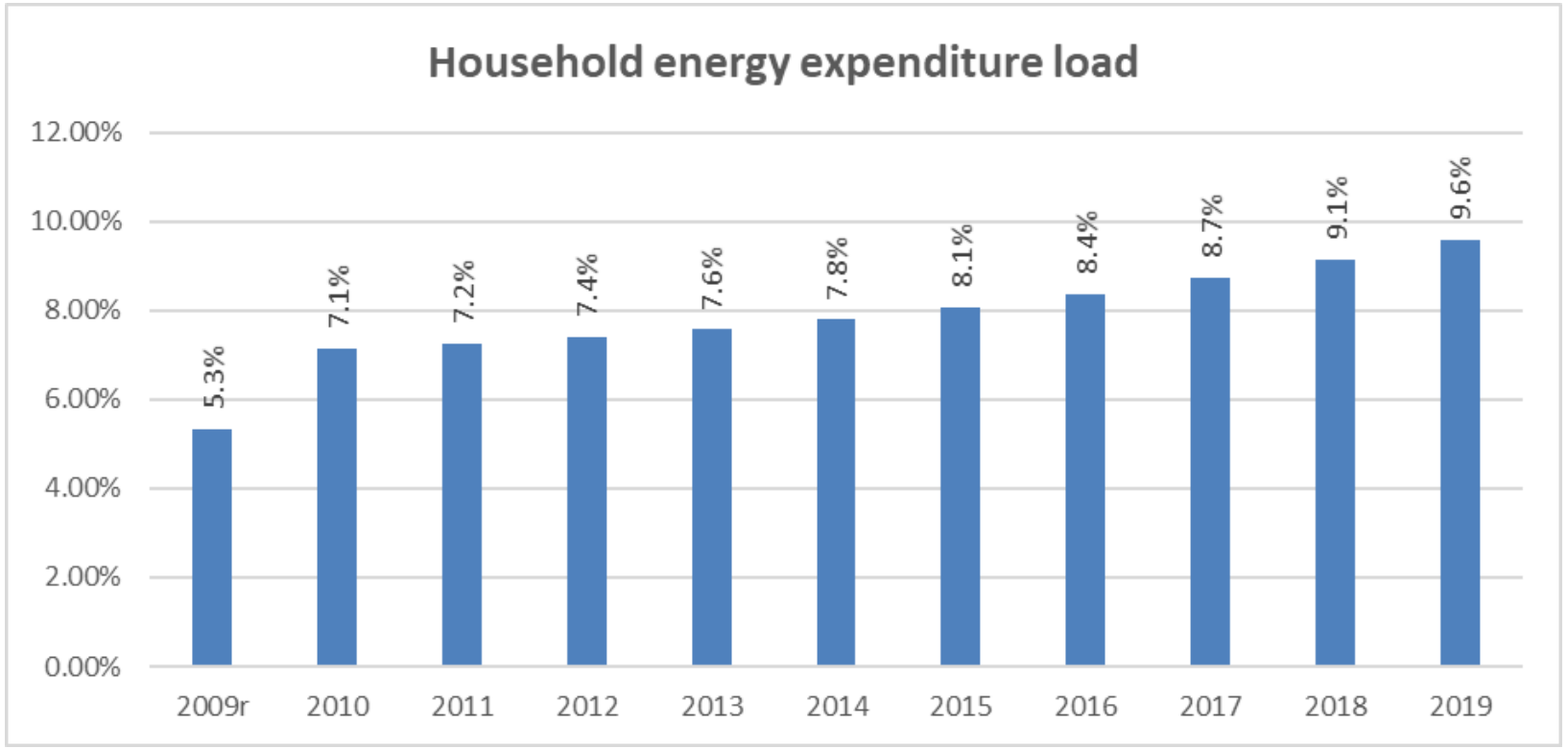
- Strengthening or reviewing Tuvalus tariff structure
- Improving efficiency and productivity of TEC?

MACRO-ECONOMIC AFFORDABILITY - TOTAL MINERAL FUEL IMPORTS AS A PERCENTAGE OF REAL GDP.



The higher the figure, the more vulnerable an economy is towards world market price volatility

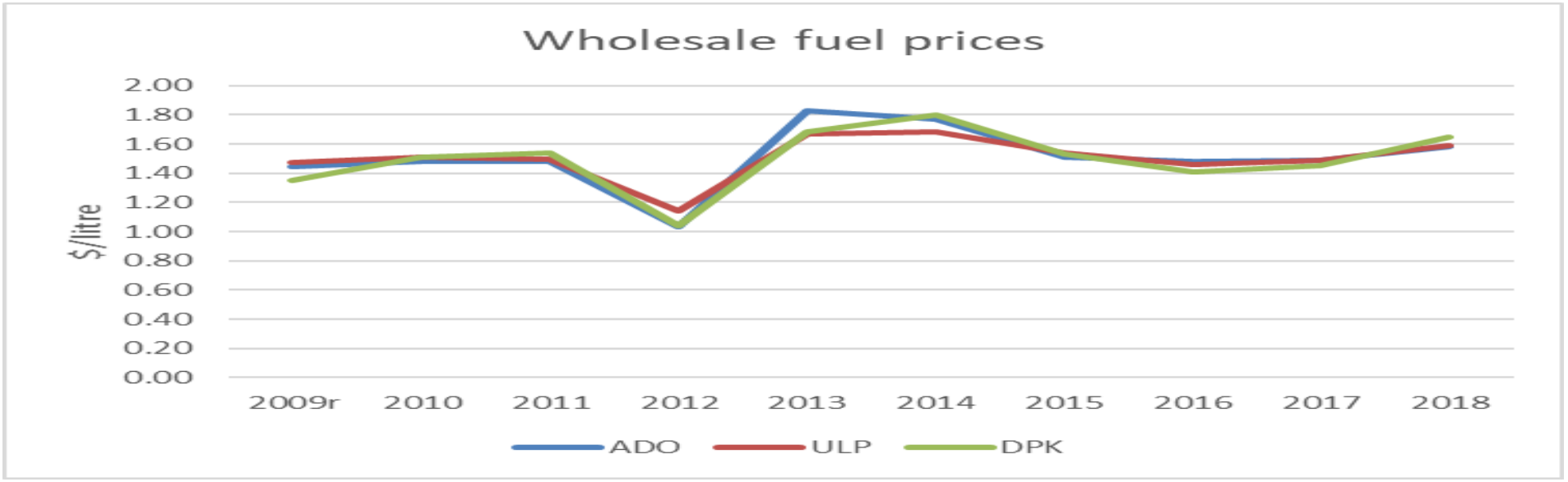
HOUSEHOLD ENERGY EXPENDITURE LOAD - *SHARE OF HOUSEHOLD INCOME SPENT ON COOKING FUEL, ELECTRICITY, AND TRANSPORTATION FUEL*

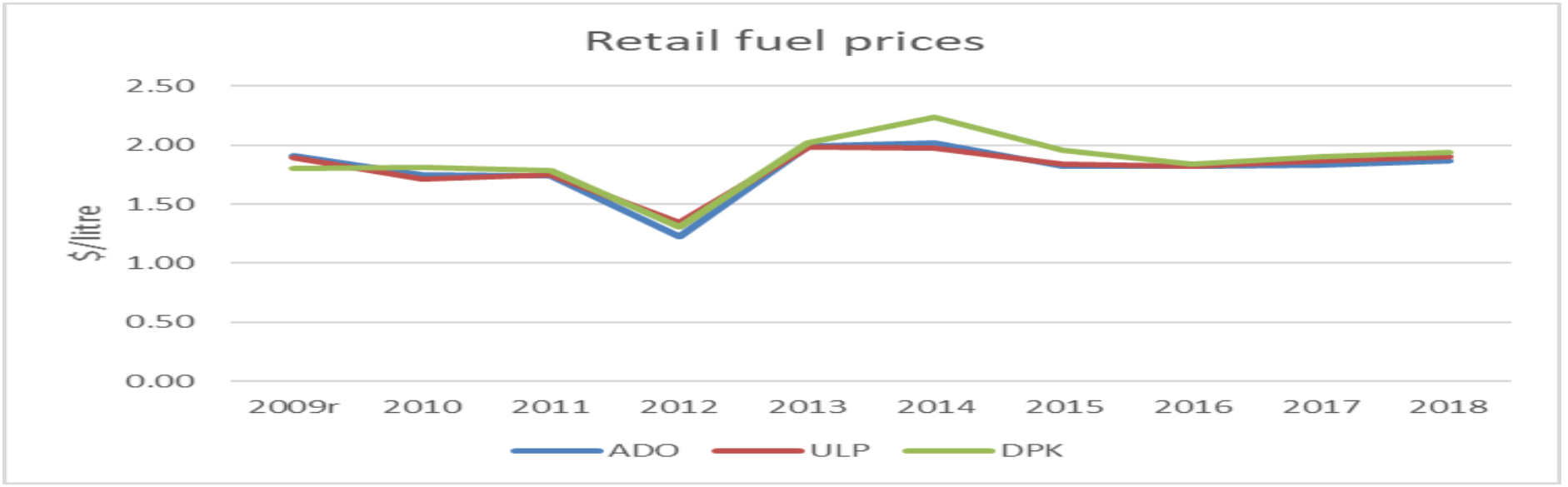


A household is considered in fuel poverty if it needs to spend more than 10% of their total household income on all household fuels to achieve a satisfactory indoor environment.

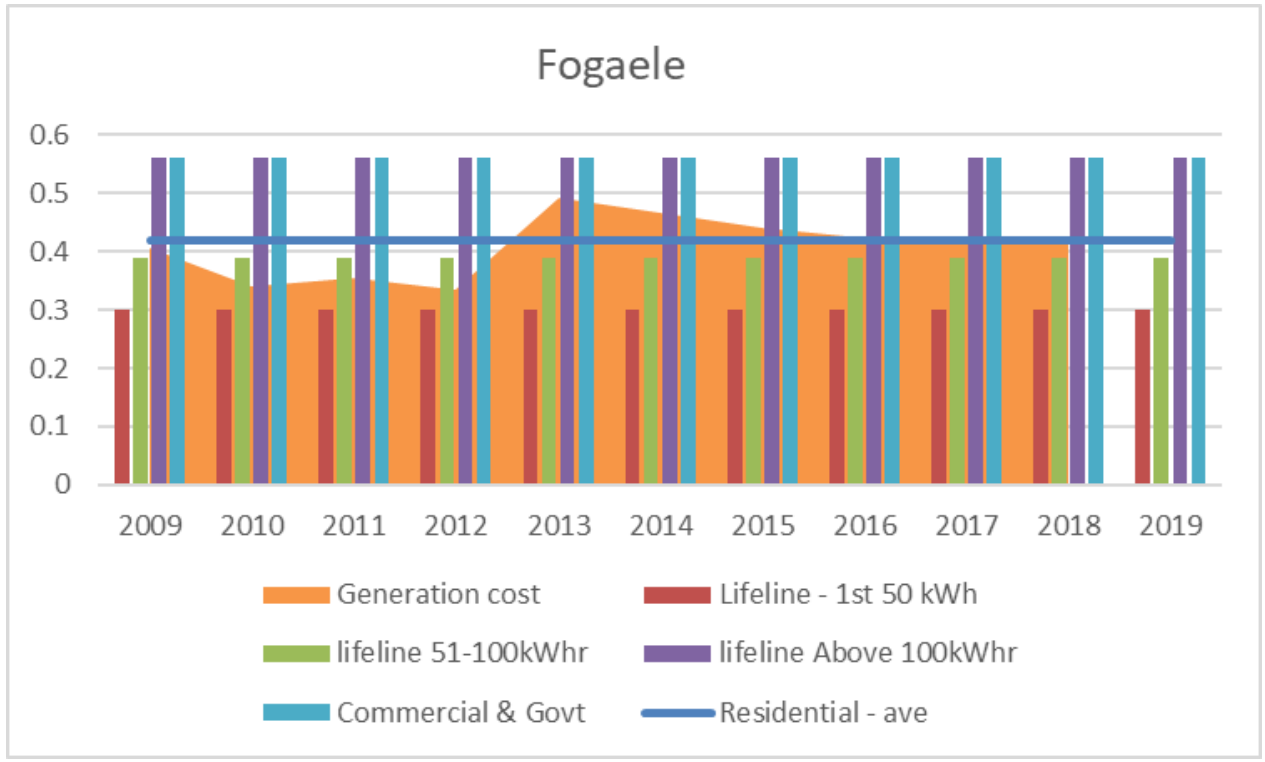
Source: HIES 2010, 2015/2016,
Non survey years – SPC estimates

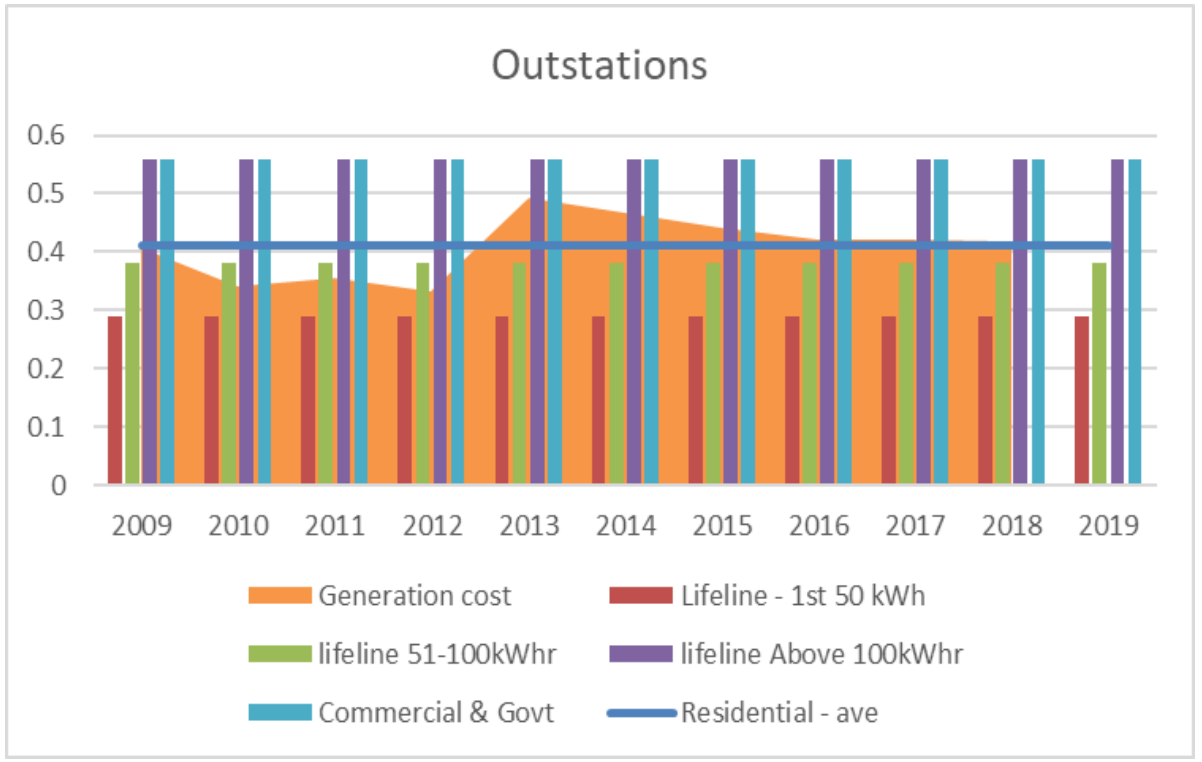
FUEL PRICES


Wholesale fuel prices
$/litre
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
2009r
2010
2011
2012
2013
2014
2015
2016
2017
2018
ADO
ULP
DPK


Retail fuel prices
$/litre
2.50
2.00
1.50
1.00
0.50
0.00
2009r
2010
2011
2012
2013
2014
2015
2016
2017
2018
ADO
ULP
DPK

ELECTRICITY TARIFF





Generation cost estimated based on KWH generated from 1 litre of diesel based on wholesale fuel price