SDGs, NDCs and the Electricity Sector
Future is Electric

Atul Raturi
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THE UNIVERSITY OF THE SOUTH PACIFIC

Dr. Atul Raturi
PhD, SMIEEE
The University of the South Pacific

Atul has worked in India, Kenya, and the Pacific. He is engaged in teaching and researching materials/devices/policies for solar energy development in the island countries with special interest in community engagement He is also an adjunct AP at SPREE, UNSW, Australia.

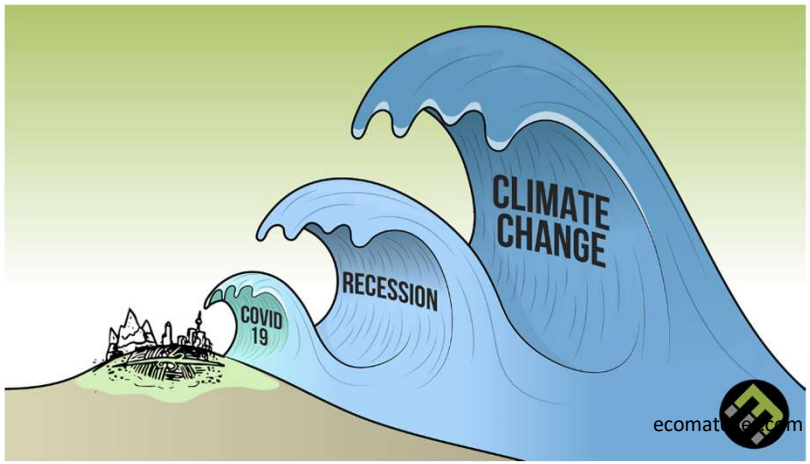
He has been a consultant to SEFP (WB), IUCN, ADB and UNEP among others. Atul is a member of Pacific Energy Technical Working Group, Expert Group on Energy's Interlinkages with Other SDGs (UNDESA) and ESCAP-APNETT.

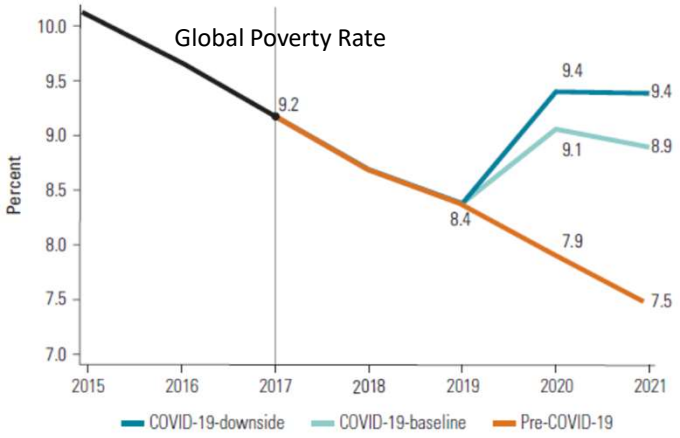
Presentation Topic:

SDGs, NDCs and the role of electricity sector in achieving them

Present a run down on the progress on NDCs and SDGs and then discuss why utilities/electricity sector will be crucial in PICTs plans to fulfill their national/international commitments.

Global challenges- seen & unseen





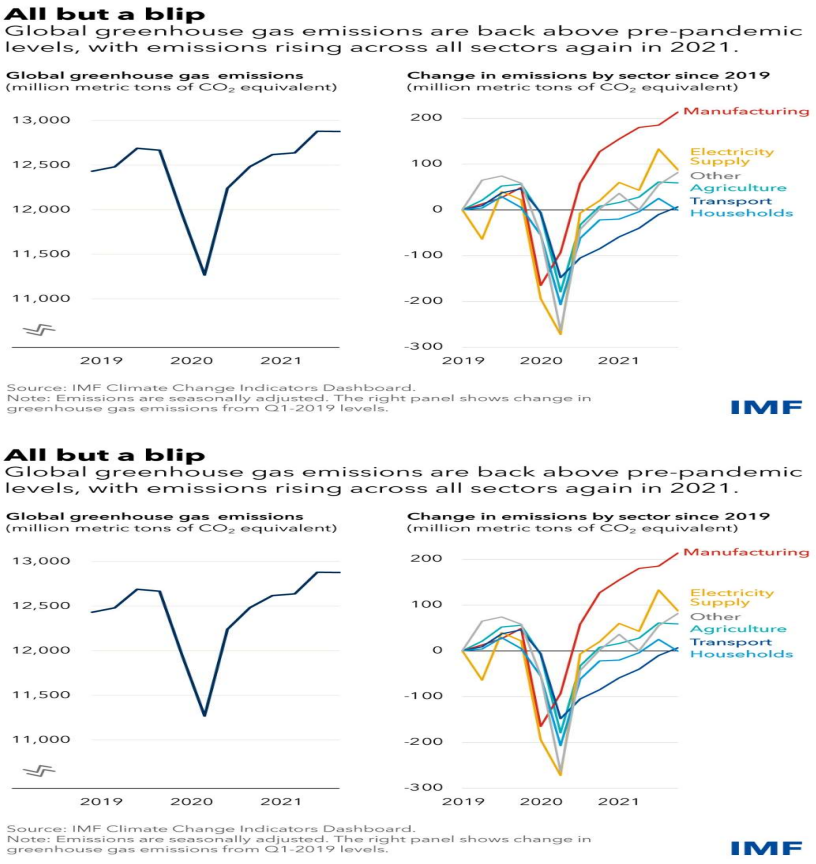
World Bank- Reversals of fortune- 2020

COVID-19, conflict, and climate change have reversed the gains in poverty eradication for the first time in a generation (World Bank Report,2020)

Post COVID-19 Recovery and Sustainable Energy

- COVID-19 Intensifies the Urgency to Expand Sustainable Energy Solutions Worldwide (World Bank)
- Throughout COVID-19 recovery, 'plummeting' clean energy costs can help climate action and achieve Paris agreement commitments (UNEP)
- Clean energy can power a COVID-19 recovery (UNDP)
- Clean energy transitions must be at the centre of economic recovery and stimulus plans (IEA)
- COVID-19 Intensifies the Urgency to Expand Sustainable Energy Solutions Worldwide (IRENA)

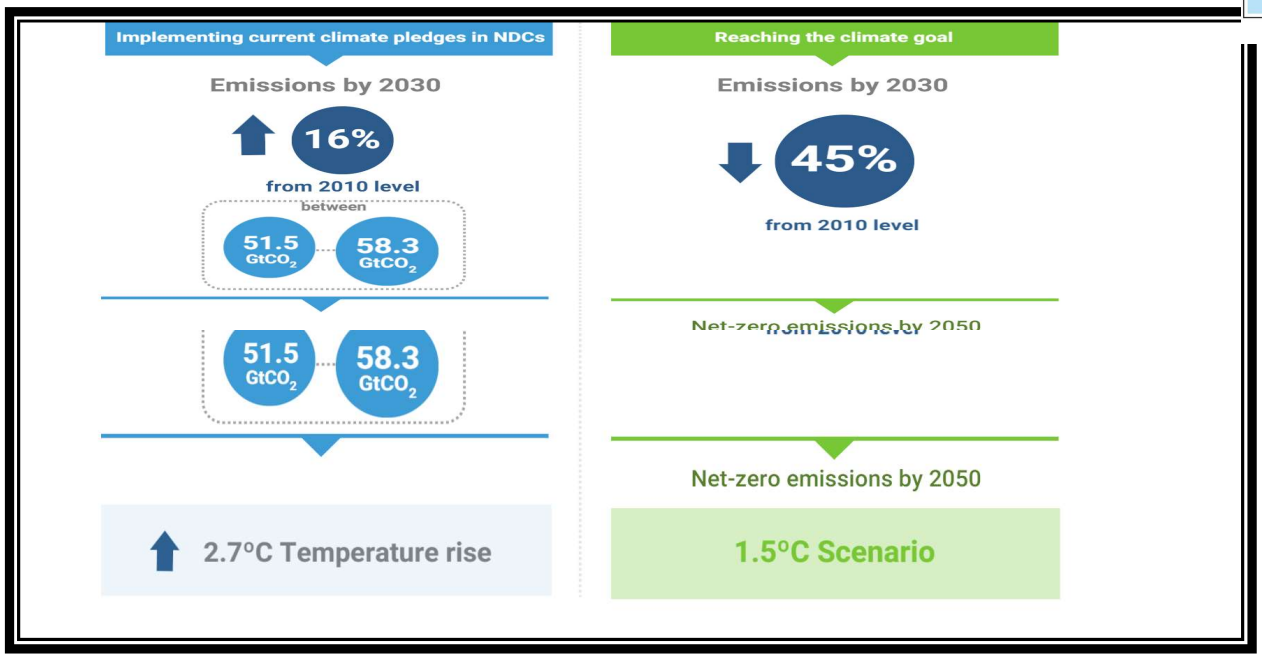
Back to Business As Usual (Post Covid)?



The Good News

"Thanks to record deployment of renewables and EVs, the CO_2 intensity of the world's energy supply is improving again after worsening in 2021 when the economy rebounded sharply" (IEA , Oct 2022)

The Science is Clear: More Efforts Needed



PICT NDCs

PICT	NDC Targets
Cook Islands	Reduce emissions from electricity generation by a further 43%, totaling an 81% emissions reduction by 2030 (relative to 2006)- Conditional
Fiji	30% reduction in GHG emissions (20% from RE in electricity conditional) . 10 % EE
Kiribati	Reduce emissions by 35,880tCO2e annually by 2025 and by 38,420tCO2e annually by 2030 (conditional)
Marshall Islands	Reduce GHG emissions to at least 32% below 2010 levels by 2025 and further to at least 45% below 2010 levels by 2030. (Conditional)
Micronesia (Federated States of)	35 % reduction in GHG (conditional). 28% reduction by 2025 - baseline 2006
Nauru	100% RE on grid by 2050 (61% conditional)
Niue	80% RE in electricity generation by 2025- 69% conditional
Palau	45% renewable energy , 35% energy efficiency by 2025, 22% energy sector emissions reductions below 2005 levels by 2025- 95% conditional
Papua New Guinea	78% of electricity from renewable energy sources by 2030 - 100% conditional
Samoa	100% Electricity from Renewables by 2025 (Conditional)
Solomon Islands	27% reduction in GHG emissions by 2025 and 45% reduction in GHG emissions by 2030 (Conditional)
Tonga	13% reduction in GHG emission by 2030 compared to 2006 through a transition to 70% RE electricity as well as energy efficiency measures (100% conditional)
Tuvalu	
Vanuatu	100% renewable energy in the electricity sector by 2030 (Conditional)

Mostly conditional and involve the Electricity Sector

UN SDG - 17 Goals, 169 Targets (2015-2030)

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.

Main driver for many other SDGs!

SDG 7 Synergies : The Big Picture

SDG 7 Interaction	Impacts
SDG 7 + SDG 1	Basic service for poor +Reduce energy poverty
SDG 7+SDG 3	Less pollutants + Preservation of Vaccines , medicines
SDG 7+SDG 6	Energy water nexus +Water pumping and desalination
SDG 7+SDG 8	RE industry jobs + Employment creation
SDG 7+SDG 13	Decarbonising Energy Systems

NDCs and SDGs should complement each other

http://pure.iiasa.ac.at/14621/1/SDGs-interactions-7-clean-energy.pdf

SDG 7 Progress (Global)

- **Access to electricity**

Globally, 91 percent of the population had access to electricity in 2020, leaving **733 million people unserved**

- **Access to clean cooking technologies**

In 2020, 69 percent of the global population had access to clean cooking fuels and technologies.

- **Renewable energy**

In 2019, the global share of renewable energy sources in total final energy consumption (TFEC), including traditional uses of biomass, was 17.7 percent,

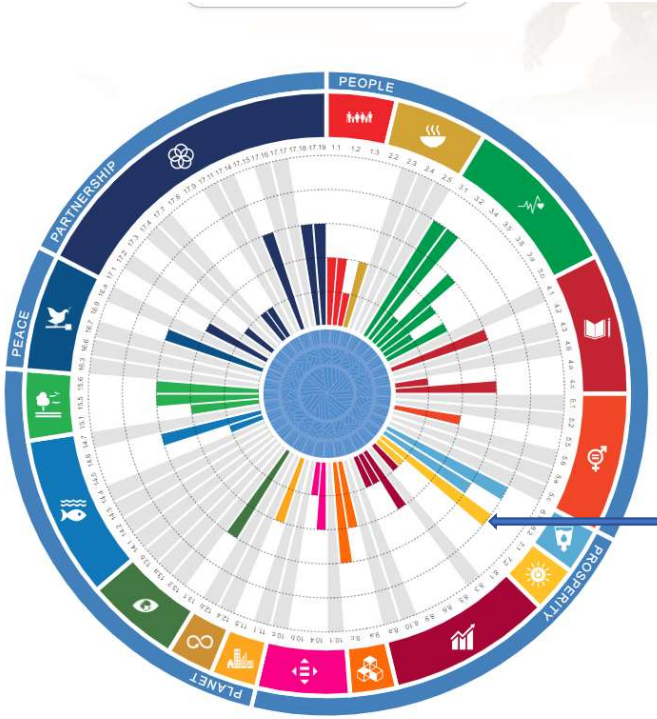
- **Energy efficiency**

The primary energy intensity was 4.69 megajoules (MJ) per U.S. dollar in 2019. 1.5 percent improvement from 2018

- **International public financial flows to developing countries in support of renewable energy**

The international financial flows to developing countries in support of clean energy were USD 10.9 billion in 2019.

SDG Progress in Pacific



SDG7

https://pacificdata.org/dashboard/17-goals-transform-pacific

SDG 7 Indicator: Electricity Access

Sustainable Development Goal 07 - Affordable and Clean Energy						
	2016	2017	2018	2019	2020	
Indicator: 7.1.1 Population with access to electricity						
Cook Islands	99.9	99.9	100	100	100	
Fiji		96	99.3	99.7	100	
French Polynesia	100	100	100	100	100	
Guam		100	100	100	100	
Kiribati	84.9	86.2	53.9	90.0	91.9	
Marshall Islands	93.1	94.3	95.9	97.5	99.2	
Micronesia (Federated States of)	75.4	77.9	79.7	81.3	82.9	
Nauru	99.2	99.9	99.9	100	100	
New Caledonia	100	100	100	100	100	
Niue	98.7	99.3	99.4	99.5	99.7	
Northern Mariana Islands		100	100	100	100	
Palau		100	100	100	100	
Papua New Guinea	22.9	54.4	55.7	59.7	60.4	
Samoa	96.4	96.8	99.9	99.2	100	
Solomon Islands		62.9	66.1	69.8	73.3	
Tonga	97	98.4	99.1	98.4	100	
Tuvalu	97.3	98.9	99.1	99.7	99.6	
Vanuatu	57.8	62.8	61.7	64.6	67.3	

https://stats.pacificdata.org/

Some PICs still struggling with access issues

Is it affordable?
Is it clean?

SDG 7 Indicator: Clean Fuel and Technology

Indicator: 7.1.2 Population with primary reliance on clean fuels and technology						
			2018	2019	2020	2,021
Fiji						49.5
Kiribati			9.7			
Samoa				48		
Tonga				83.7		
Tuvalu				90		

Access to clean cooking still a major challenge

SDG Indicator: RE Share in Final Energy

Indicator: 7.2.1 Renewable energy share in the total final energy consumption	2016	2017	2018	2019	
American Samoa	0.3	0.49	0.49	0.5	
Cook Islands	1.93	2.31	4.05	3.69	
Fiji	27.68	28.55	25.8	26.48	
French Polynesia	8.08	8.07	7.72	7.67	
Guam	3.03	2.96	3.04	3.02	
Kiribati	46.49	41.15	41.03	41.03	
Marshall Islands	11.75	11.75	11.72	11.7	
Micronesia (Federated States of)	1.57	1.41	1.75	1.78	
Nauru	0.18	0.6	0.66	0.61	
New Caledonia	3.7	5.08	4.77	5.4	
Niue	22.07	22.36	23.4	22.38	
Northern Mariana Islands	0	0	0	0	
Palau	0.05	0.05	0.3	0.29	
Papua New Guinea	54.56	54.45	52.96	53.09	
Samoa	36.82	35.79	36.63	34.21	
Solomon Islands	48.7	48.98	48.64	48.39	
Tonga	2.03	1.96	1.78	1.77	
Tuvalu	9.46	8.74	8.32	8.2	
Vanuatu	33.4	36.13	29.96	31.86	
Wallis and Futuna	0.62	0.67	0.71	0.71	

SDG7: Financial Flows

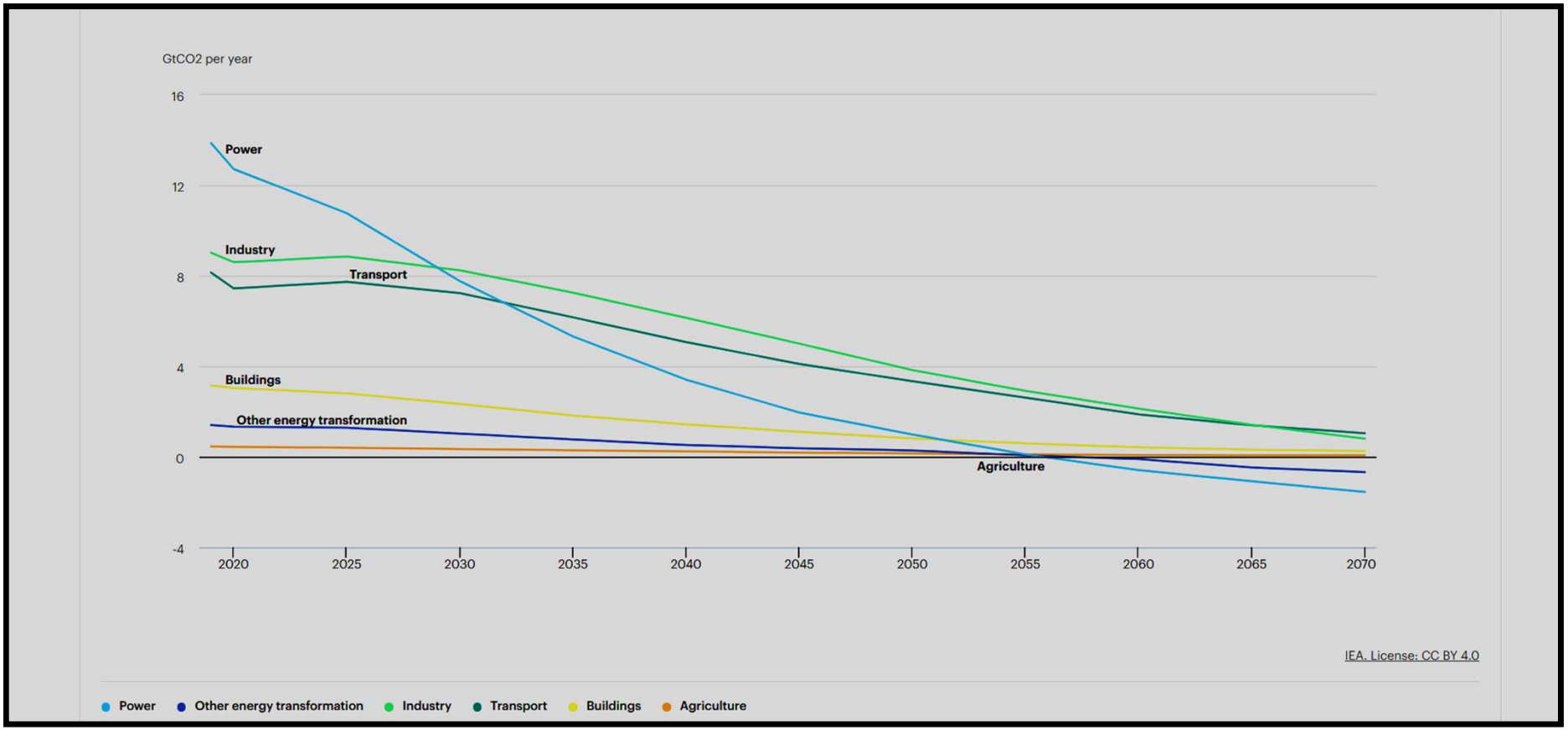
Sustainable Development Goal 07 - Affordable and Clean Energy					
Indicator: 7.a.1 International financial flows to developing countries in support of clean energy					
	Time	2016	2017	2018	2019
Pacific Island Countries and territories					
Fiji		0.19	0.05	5.62	0.11
Kiribati				0.86	
Marshall Islands			41.66		
Micronesia (Federated States of)			1.18	10.01	27.27
Nauru			2.65		
New Caledonia			4.27		
Niue			3.51		
Papua New Guinea			0.83	0.13	0.12
Samoa			2.05		
Solomon Islands			163.01	20.55	46.4
Tonga			20.47	37	2.45
Tuvalu				0.39	6.16
Vanuatu			17.77	1.78	0.15

SDGs in NDCs ?

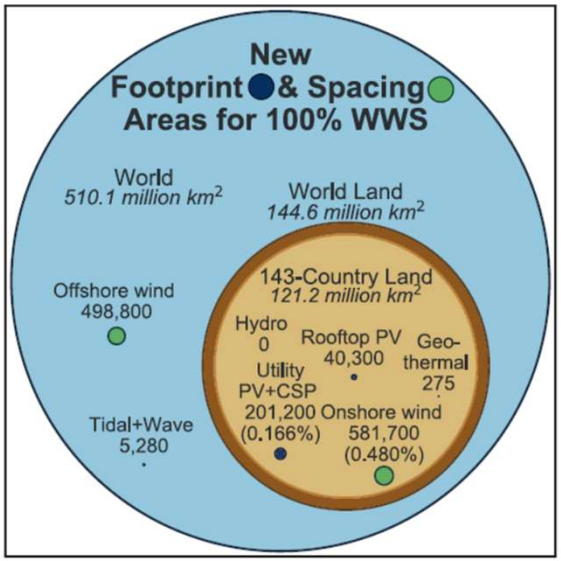
Member Country	SDGs in NDC	7.1 Energy Access	7.2 Renewable Energy	7.3 Energy Efficiency	7.a Cooperation & Investment	7.b Infrastructure & Technology	Aliign-ment
Australia	×	×	✓	✓	×	×	40%
Fiji	×	×	✓	✓	✓	✓	80%
Kiribati	×	✓	✓	✓	×	×	60%
Nauru	×	×	✓	✓	×	×	40%
New Zealand	×	×	✓	✓	×	×	40%
Papua New Guinea	×	×	✓	✓	×	×	40%
Samoa	×	×	✓	×	×	×	20%
Solomon Islands	×	×	✓	✓	×	×	40%
Tonga	×	✓	✓	✓	×	×	60%
Tuvalu	×	×	✓	✓	✓	✓	80%
Vanuatu	×	✓	✓	✓	×	×	60%
Total %		**30**	**100**	**90**	**20**	**20**	**51%**

Source: Climate Watch (2019); German Development Institute (DIE et al; 2019); New Zealand determined by the author (2019)

Required Sectoral GHG Reduction (IEA-SDG Scenario)



100 % RE scenarios



- 100% RE energy (WWS) based solutions proposed for 143 countries

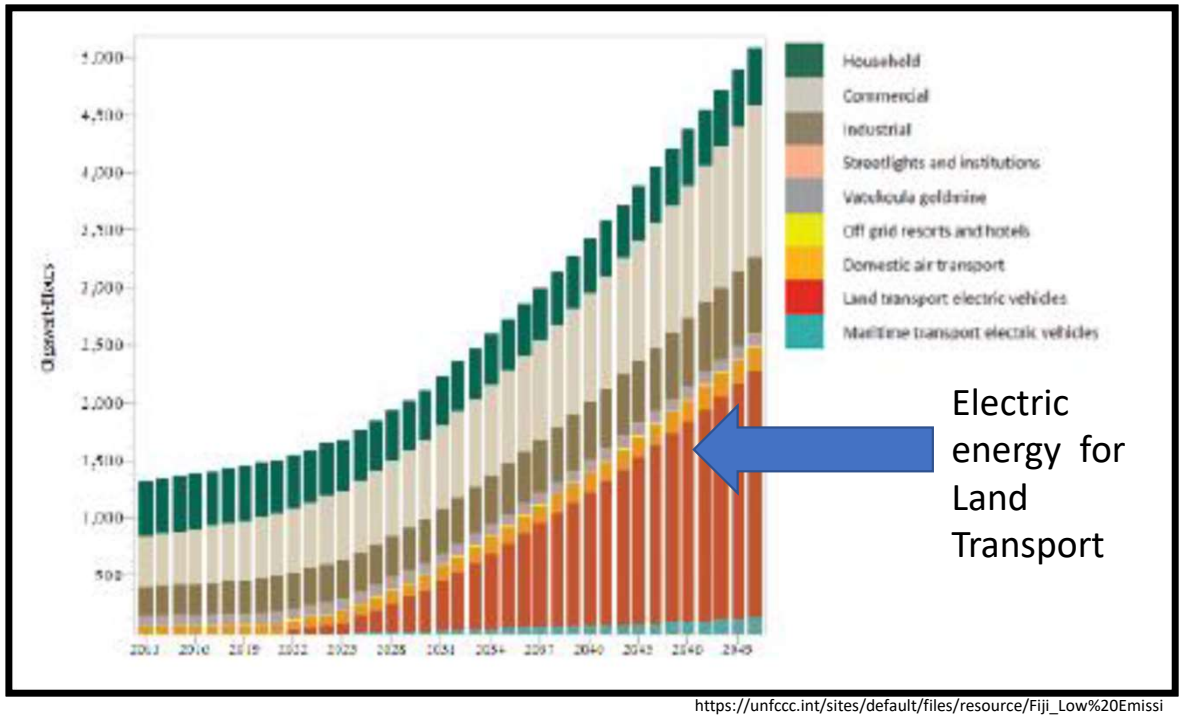
(Jacobson et al, One Earth, 1(4), 2019

100% RE in Australia
(Bleakers et al, Energy 133, 2017

Zero oil, gas and coal in 2050

- **85%** reduction in emissions
- Electrify everything (transport, heating, industry etc)
- → **treble** electricity production
- → deploy ~**15** GW per year of solar & wind

Future is Electric : Fiji LEDS (High Ambition Scenario)

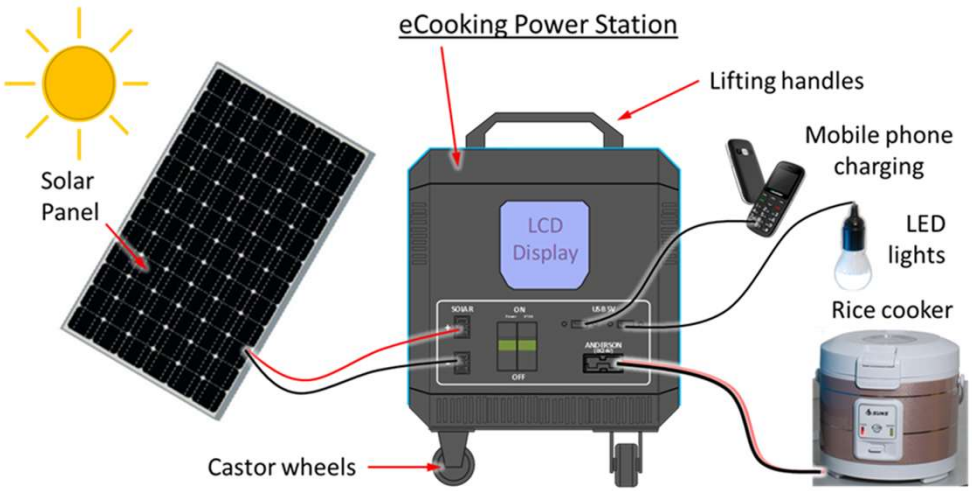


https://unfccc.int/sites/default/files/resource/Fiji_Low%20Emission%20Development%20%20Strategy%202018%20-%202050.pdf

Research and feasibility study of various possible RE resources are essential

Electric utilities/providers will play a very important part in any future energy scenario

e-cooking



We'll need fundamental shift in energy usage in all sectors

Future is electric

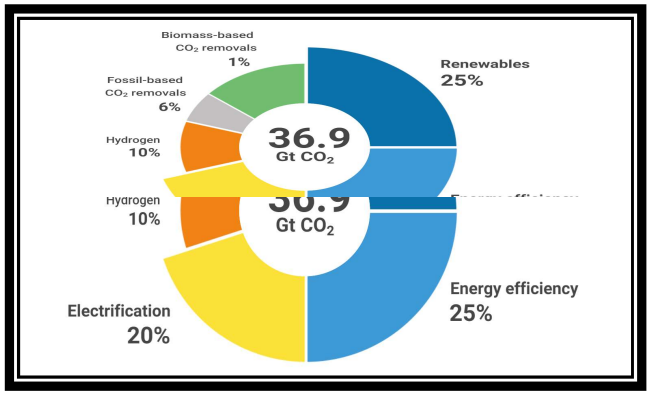
Future is Electric

“Electricity is taking on an ever-more central role in the lives of consumers and, for an increasing number of households, it promises to become the energy source on which they rely for all their everyday needs: mobility, cooking, lighting, heating and cooling. The reliability and affordability of electricity is set to become even more critical to all aspects of people’s lives and well-being.”

IEA , WEO 2021

“(RE) Electricity is the new oil”

WEC



IRENA

Sustainable Energy Finance (An example)

Funding for bankable sustainable energy projects
IRENA, ADFD . Masdar. Swiss Re and AIIIB

Electricity Sector and NDCs, SDGs

- Electricity providers should be part of all sectorial planning
- No 'one size fits all' : each country/utility is different
- Research and resource data needed to design/implement appropriate systems
- Innovative Financing , Carbon Credits. Productive use of energy, Human and technical Capacity
- COP27: The new Loss and Damage Fund : Cyclone/climate change related damages to power infrastructure

Question : Are the regional utilities/electricity providers equipped to support their governments' ambitious commitments and targets? If not, what is the way forward ?