RENdez-vous Southeast Asia:
From Fossil Fuels to Renewables Now:
Strategising Energy Transition - REN21

Prepared for REN21

Institute for Sustainable Futures

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Sydney/Australia

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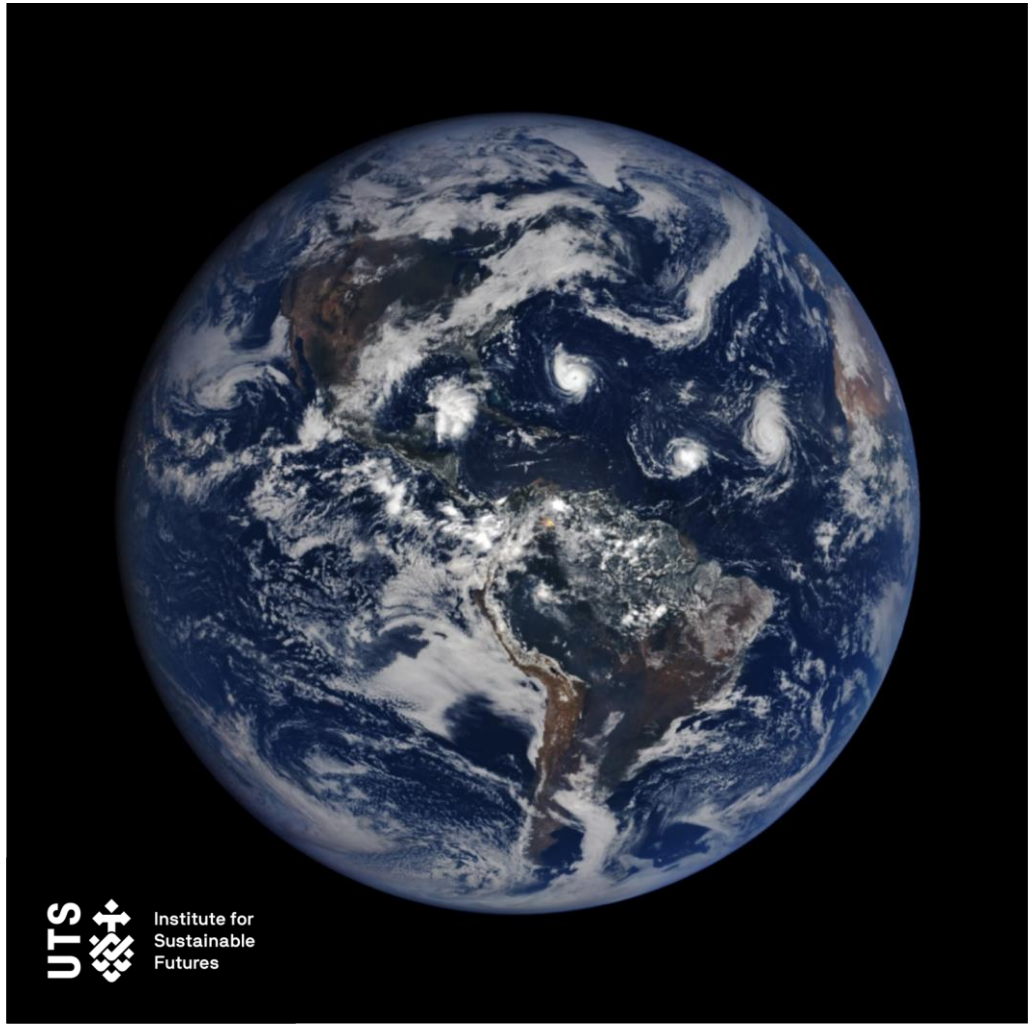

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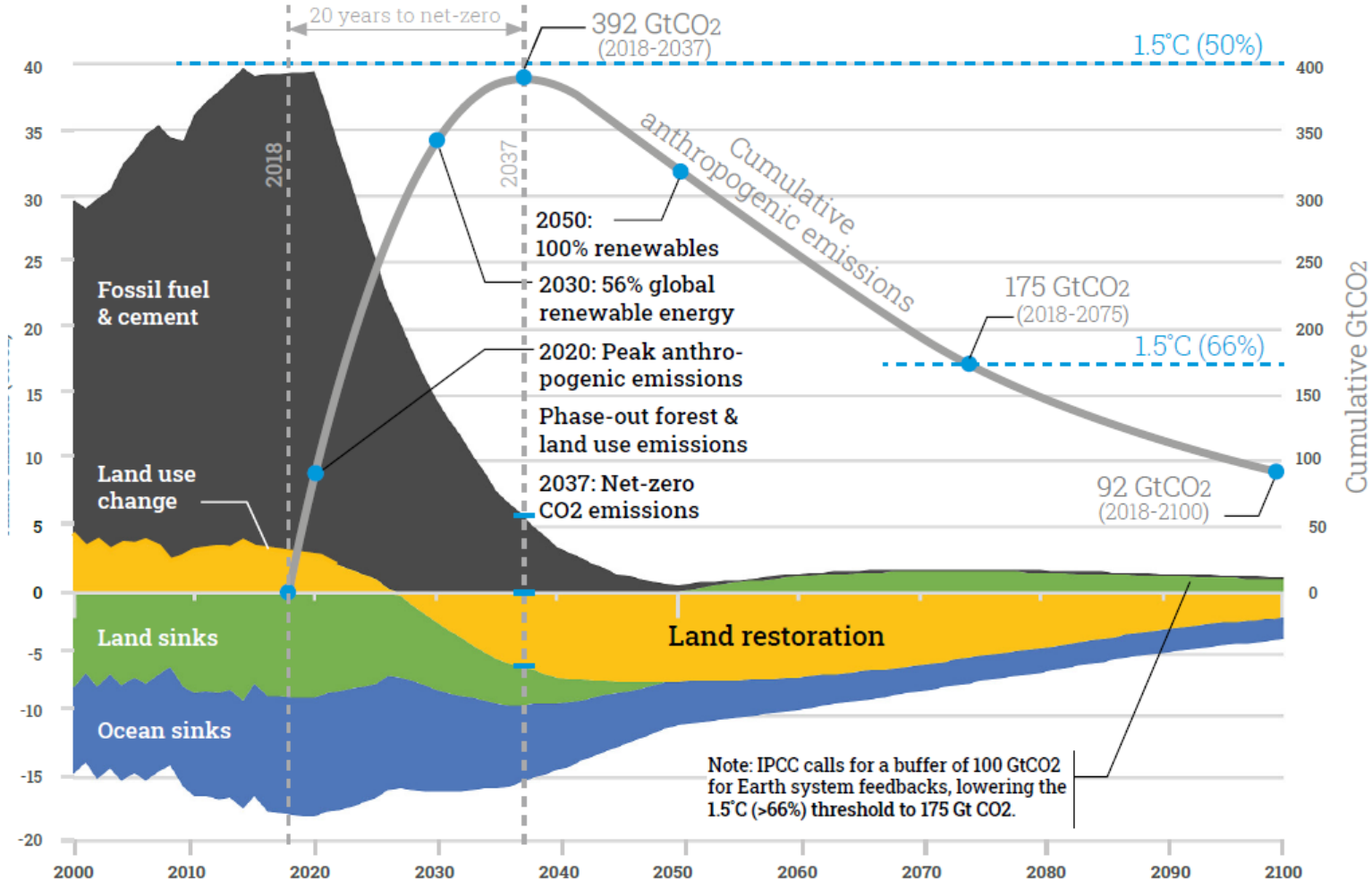
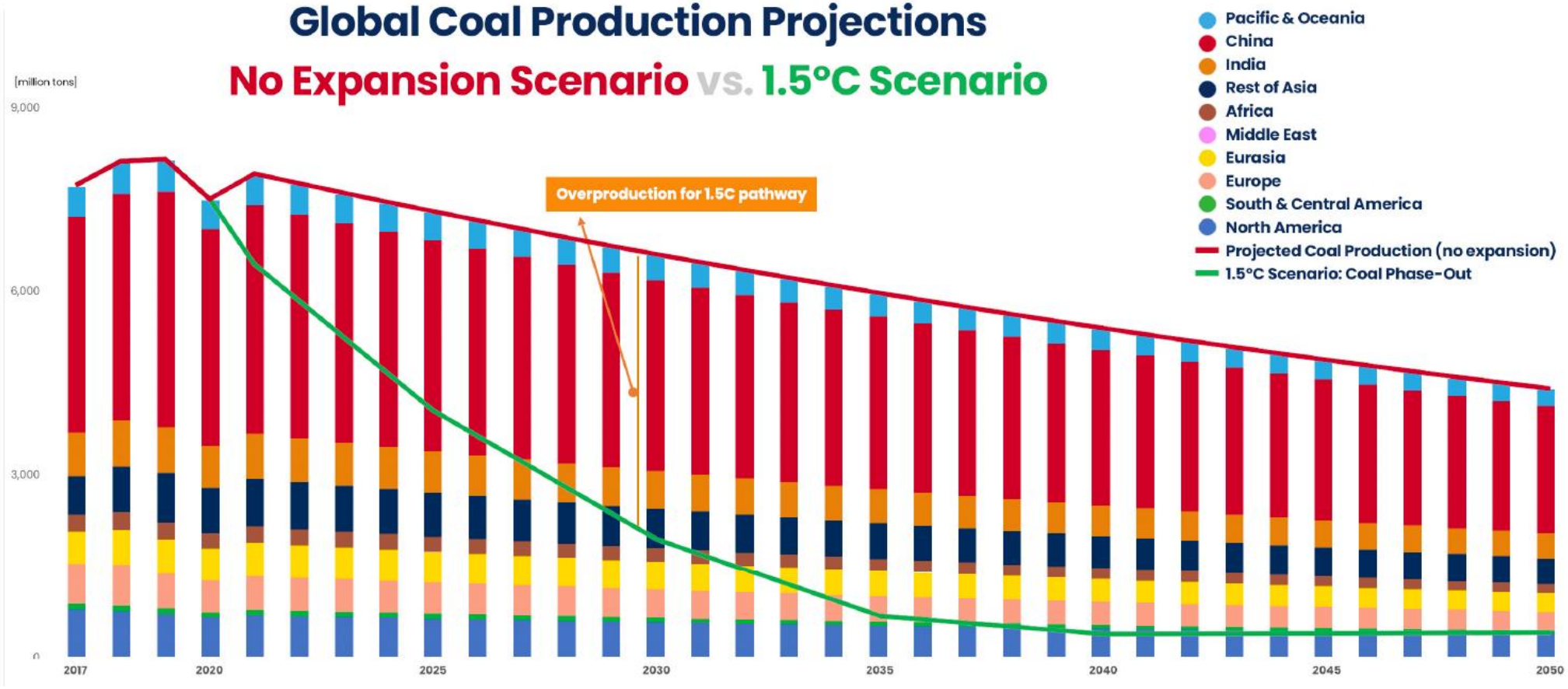
The Challenge: Staying within the Carbon Budget for 1.5°C

The OneEarth Climate Model

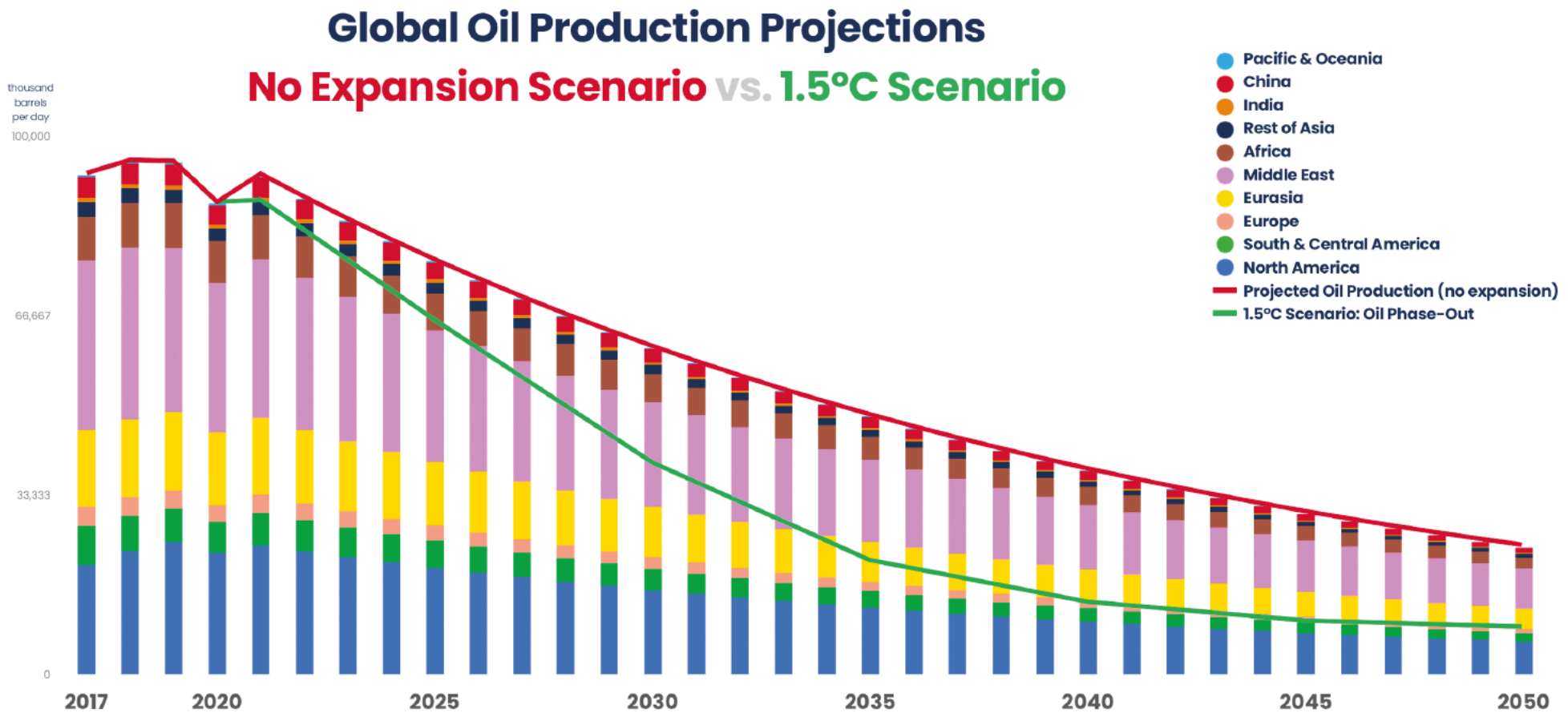


The FOSSIL FUEL EXIT STRATEGY: An orderly wind down of coal, oil and gas to meet the Paris Agreement



Coal production 2017-2050 – No Expansion projection (red line) vs. the pathway required to limit warming to 1.5ºC (green line)

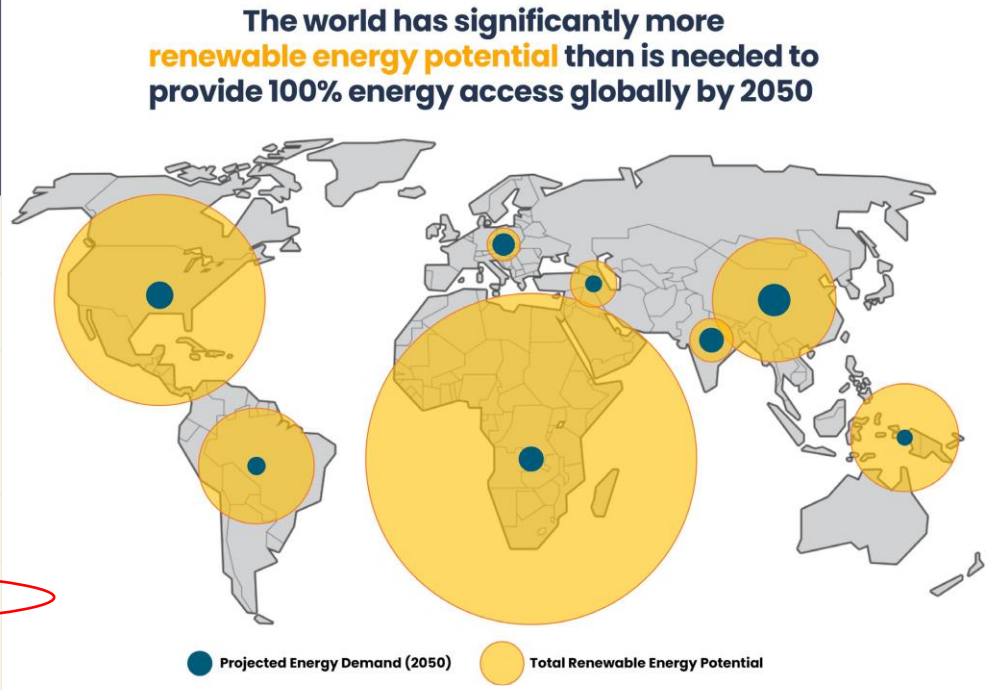
The FOSSIL FUEL EXIT STRATEGY: An orderly wind down of coal, oil and gas to meet the Paris Agreement



Crude Oil production 2017-2050 – No Expansion projection (red line) vs. the pathway required to limit warming to 1.5ºC (green line)

The FOSSIL FUEL EXIT STRATEGY: There's more than enough Renewable Energy for Economic Development

Region	Solar			Wind			Total Generation Potential Solar + Onshore Wind [TWh/a]	Current Electricity Demand [TWh/a]	Potential Supply Factor
	Potential availability for utility-scale [km²]	Space Potential [GW]	Solar Generation [TWh]	Potential availability for utility-scale [km²]	Space Potential [GW]	Wind Generation [TWh]			
North America	13,094,767	327,369	589,264	12,710,832	141,873	347,589	936,854	5,293	177
Latin America	5,946,569	148,664	208,130	5,947,135	29,736	72,853	280,983	1,280	220
Europe	49,440,273	1,236,011	1,421,413	45,242,245	226,944	486,568	1,907,981	3,554	537
Middle East	48,865,697	1,221,647	2,198,965	44,814,466	224,072	548,976	2,747,941	1,046	2,626
Africa	47,887,663	1,197,196	2,394,392	44,720,505	223,601	559,003	2,953,395	781	3,782
Asia	10,005,058	250,131	479,501	5,777,229	28,886	84,260	563,762	1,362	414
India	8,242,512	206,065	412,130	4,829,287	24,146	61,283	473,413	1,383	342
China	7,076,636	176,917	270,860	3,569,615	17,848	50,438	321,298	5,883	55
Pacific	4,967,112	124,177	173,848	4,889,446	24,446	71,945	245,792	1,948	126
Global	195,526,287	4,888,177	7,795,665	172,500,760	941,552	2,445,023	10,240,687	24,262	422



Key Advantages of Renewable Energies

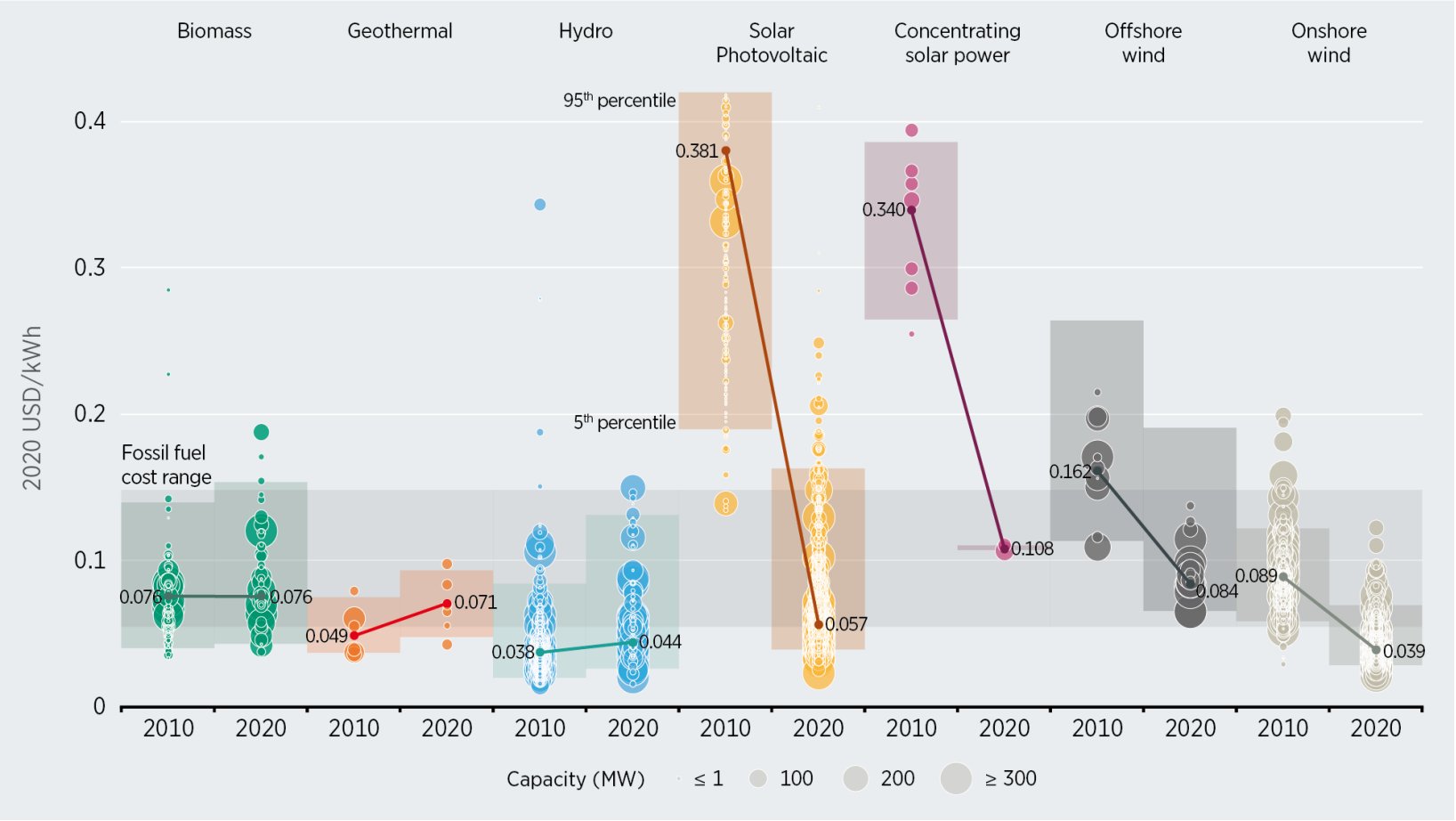
- Reliable generation of domestic electricity, heat and renewable fuels
- Independence from global fuel prices
- Stable electricity generation costs – no fuel needed

  therefore electricity price can be calculated over 10 years +
- Local workforce needed for operation & maintenance
- No combustion process means no air pollution
- Electric drives are silent – less noise in cities

….and

Key Advantages of Renewable Energies

….renewable electricity generation is now the most economic technology. (IRENA 2021)

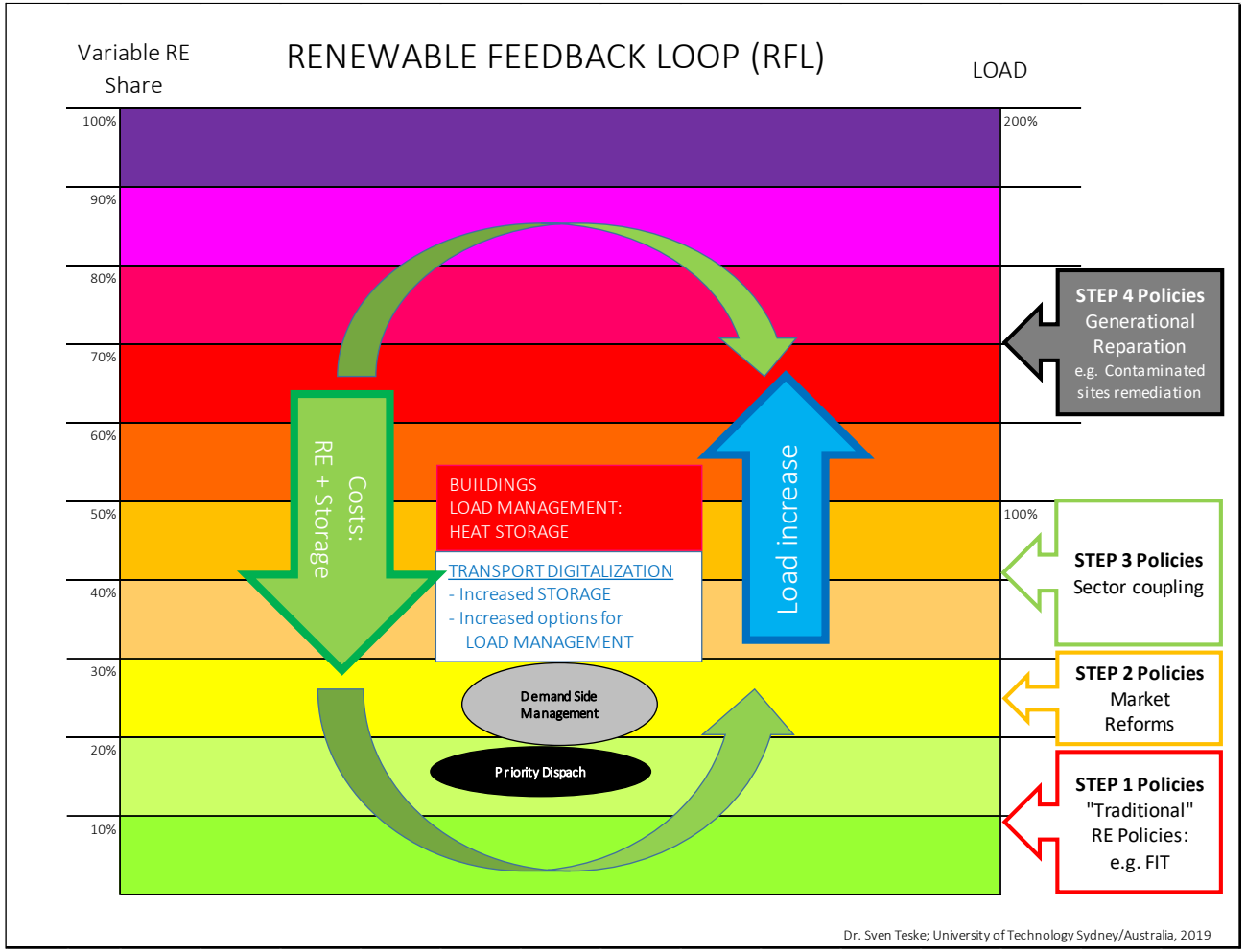


Policies & Experiences - Renewable Energies

The "Renewable Feedback Loop"

Policy Requirements for Renewables

- Reliable (don't change it after every election)
- System Overarching Policies
  - Infrastructure (grids)
  - Generation (all RE to achieve variety)
  - System Services (storage & generation management)
  - Sector coupling



Thank you
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More information

Associate Prof Dr Sven Teske

[Global Report Open Access Book for free download at Springer Data on website]:

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Achieving the Paris Climate Agreement Goals

Global and Regional 100% Renewable Energy Scenarios with Non-energy GHG Pathways for +1.5°C and +2°C

Editors: **Teske**, Sven (Ed.)

Presents robustly modeled scenarios to achieve 100% renewable energy by 2050

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I acknowledge the traditional owners of the land on which I live and work and pay my respects to elders past and present.

[Fossil Fuel Exit Strategy] / **June 2021**