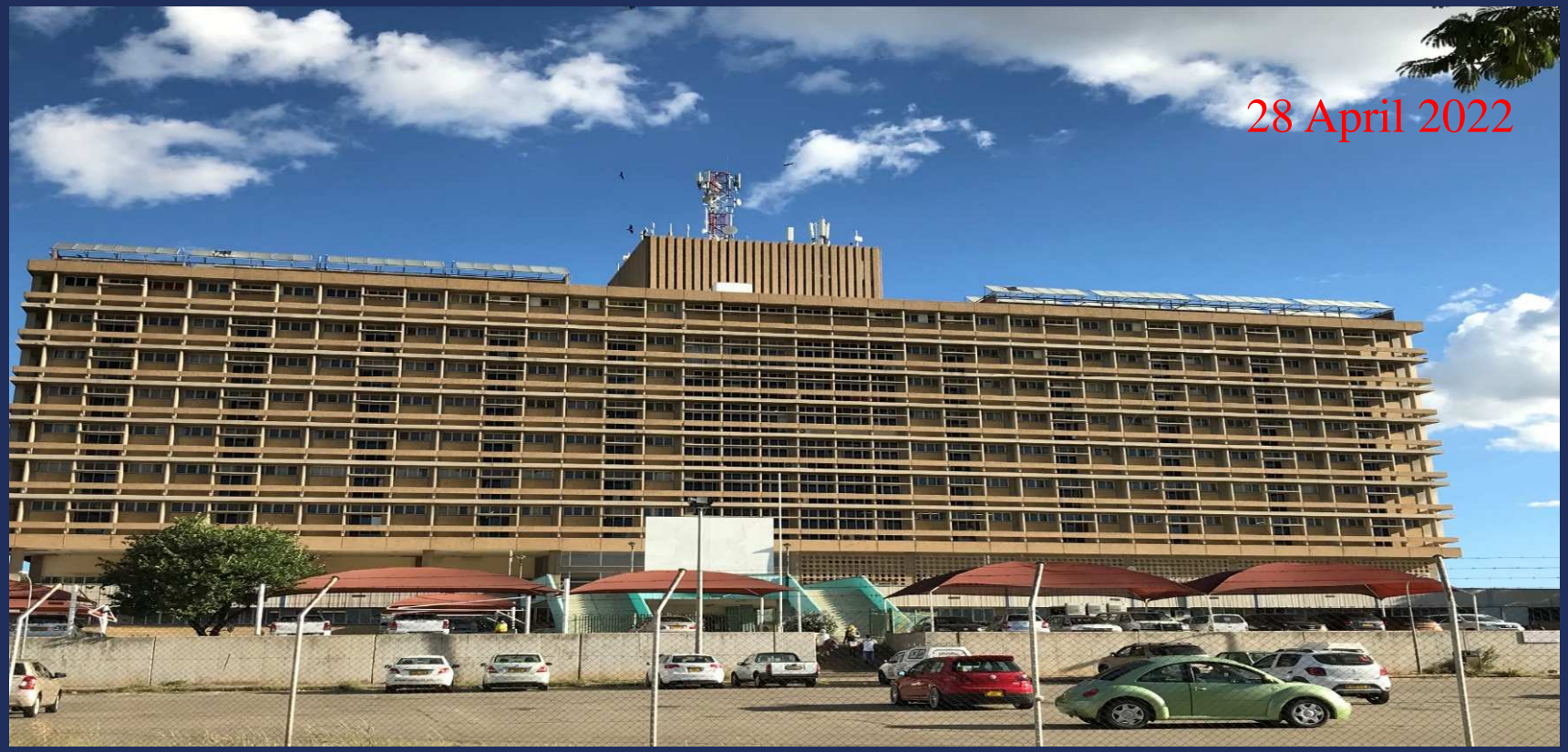
The potential of solar thermal technologies in the Namibian health sector



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Outline

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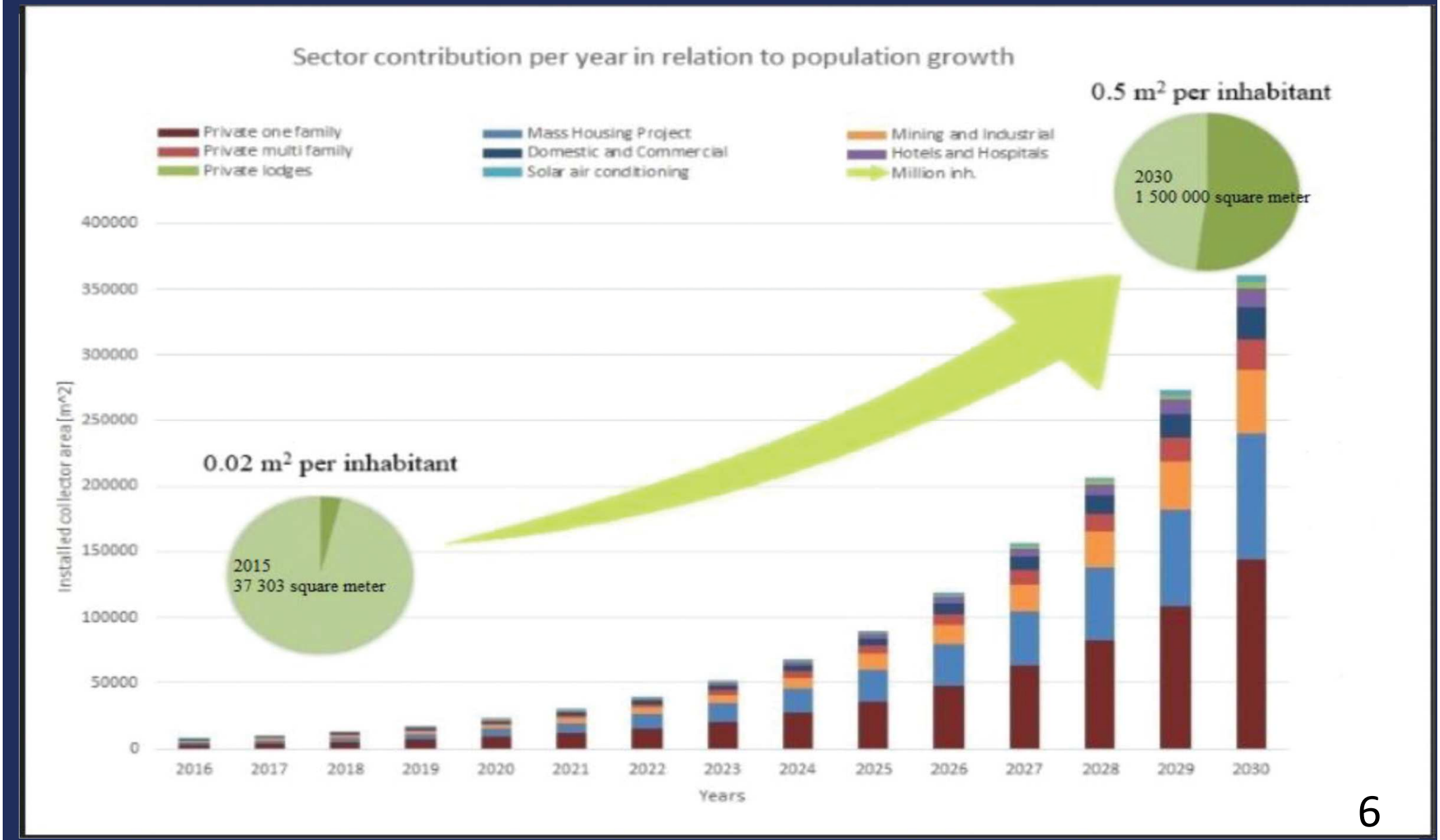
Introduction

- The Ministry of Mines and Energy (MME) has Cabinet Directive on Solar Water Heater (SWH) since 2006
  - All public buildings are to meet hot water requirements with SWH
  - And all replacements of electrical geysers in the public institutions buildings are to be met with SWH
- Since 2009 NEI is implementing the SOLTRAIN initiative for Capacity building, Research, Awareness Raising and Demonstration Systems.
- Namibian Solar Thermal Technology Platform (Nam-STTP) since 2016.
- A Solar Thermal Roadmap and Implementation Plan for Namibia was developed
- In 2018 more than 123 SWH were installed at various institutions .
- Which open more doors for the uptake of STT in the sectors of industries that accommodate many people, such as health sector, school hostels, restaurants and accommodation facilities.

Vision for Solar Thermal in Namibia and sector contribution by 2030



Making the Case for Solar Thermal Technologies in Namibia

- Namibia's installed power capacity is about 639 MW (hydro 54 %, coal 14 %, diesel 3.5 % and solar and wind 28 %).
- Namibia imported close to 59% of its electricity requirements in 2020
- This results in dependence on other countries to import energy and leaves the country in a vulnerable position with regards to growing the economy
- Policies are in place and Renewable Energy (RE) will form a large part of the Namibian energy supply in the future
- However, due to long transmission line, RE capacity is caped to not more than 300MW due to the impact which these intermittent RE sources have.
- Renewable Energy with storage are regarded stabilizing the Grid and are encouraged.
- Only 50% of Namibians have access to electricity of which 21% is rural and 72% is urban

A Picture of the Namibian Health Sector in 2018

Number by region	Namibia	Erongo	Hardap	Karas	Kavango E & W	Khomas	Kunene	Ohangwena	Omaheke	Omusati	Oshana	Oshikoto	Otjozondjupa	Zambezi
Health facilities in public sector														
Tertiary care	35	4	2	3	4	2	3	3	1	4	1	3	4	1
Secondary care	43	2	3	3	7	2	3	2	1	6	5	3	3	3
Primary care	295	19	13	13	50	11	24	33	13	41	13	22	18	25
Total Health facilities	373	25	18	19	61	15	30	38	15	51	19	28	25	29
Total beds	7551	435	417	349	835	1695	300	512	178	579	946	700	347	258
Beds per 1000 population	3.2	2.3	4.7	4	3.5	3.9	3	2	2.4	2.3	4.9	3.5	2.2	2.6
Health facilities in private sector														
Tertiary /secondary /primary	101	28	3	11	2	25	2	0	5	4	4	3	9	5
TOTAL beds	1,144	238	0	0	28	605	0	0	10	24	130	27	82	0

Source: MoHSS, https://mfl.mhss.gov.na/location-manager/locations

Calculating the financial potential of Solar Thermal Technologies in the Namibia Health Sector

- Hot Water Demand: 700 733 m^3 /day
- Daily Energy Required daily :38 976 kWh
- Total Collector Area: 25 334 m^2
- Amount of money required for electricity daily: N$82 629.12

Key findings

- There is a need to involve private sector in the maintenance of SWH in the public hospitals
- Operation and maintenance of SWH at private hospital is more organised compare to public sector
- Incentive schemes should be developed for public health Facility managers to implement energy efficiency measures.
- There is need for Solar Thermal Technologies awareness campaigns for public health facility managers to be carried out regularly.
- More investments is required to develop local repair and maintenance skills.

Lady Pohamba Private Hospital

$210m^2$, $15m^3$

Conclusions

- The analysis has concluded that a total of EURO 1.75 Millions (NAD 30.2 Millions) can be saved annually in the Namibian public health sector by switching to Solar Water Heating.
- A total investment of EURO 8.9 Millions (NAD 152 Millions) would be required for the equipment and installation costs for the needed solar thermal technologies.
- The estimated payback time would be less than 10 years.
- The SOLTRAIN co financing helps to bring the payback to less than 3 years.

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THANK YOU

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