



Country Presentation
Republic of Maldives

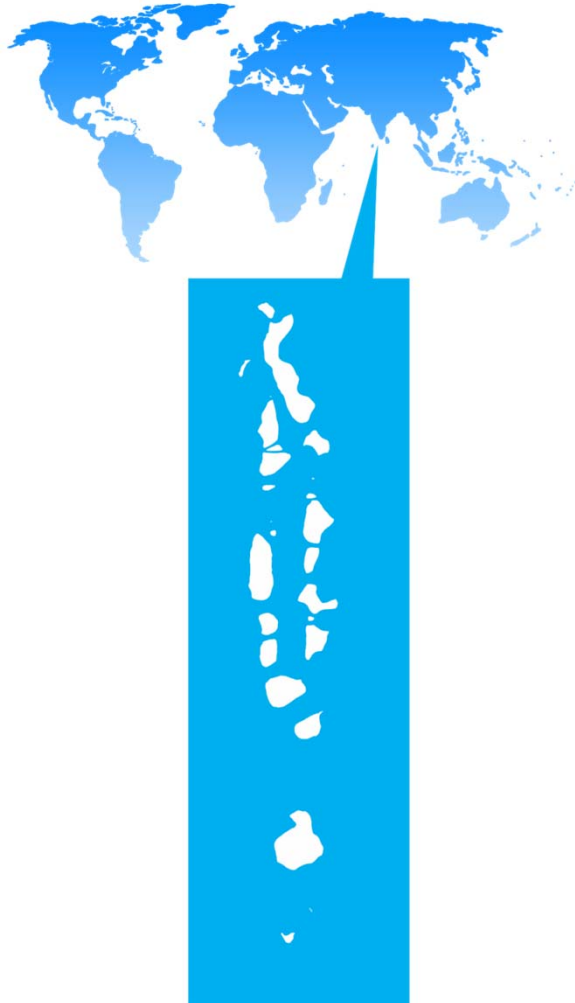


Overview of the Energy Sector and Effort Towards Smart Grid Technology

1 October 2019



COUNTRY OVERVIEW



- **1192 beautiful tropical islands**
- **190 inhabited islands**
- **107 Tourist Resorts**
- **Population of 350,759**
- **Land area: 300 km²**
- **6-8% GDP growth annually**
- **Only 1-2 % of the country is land**



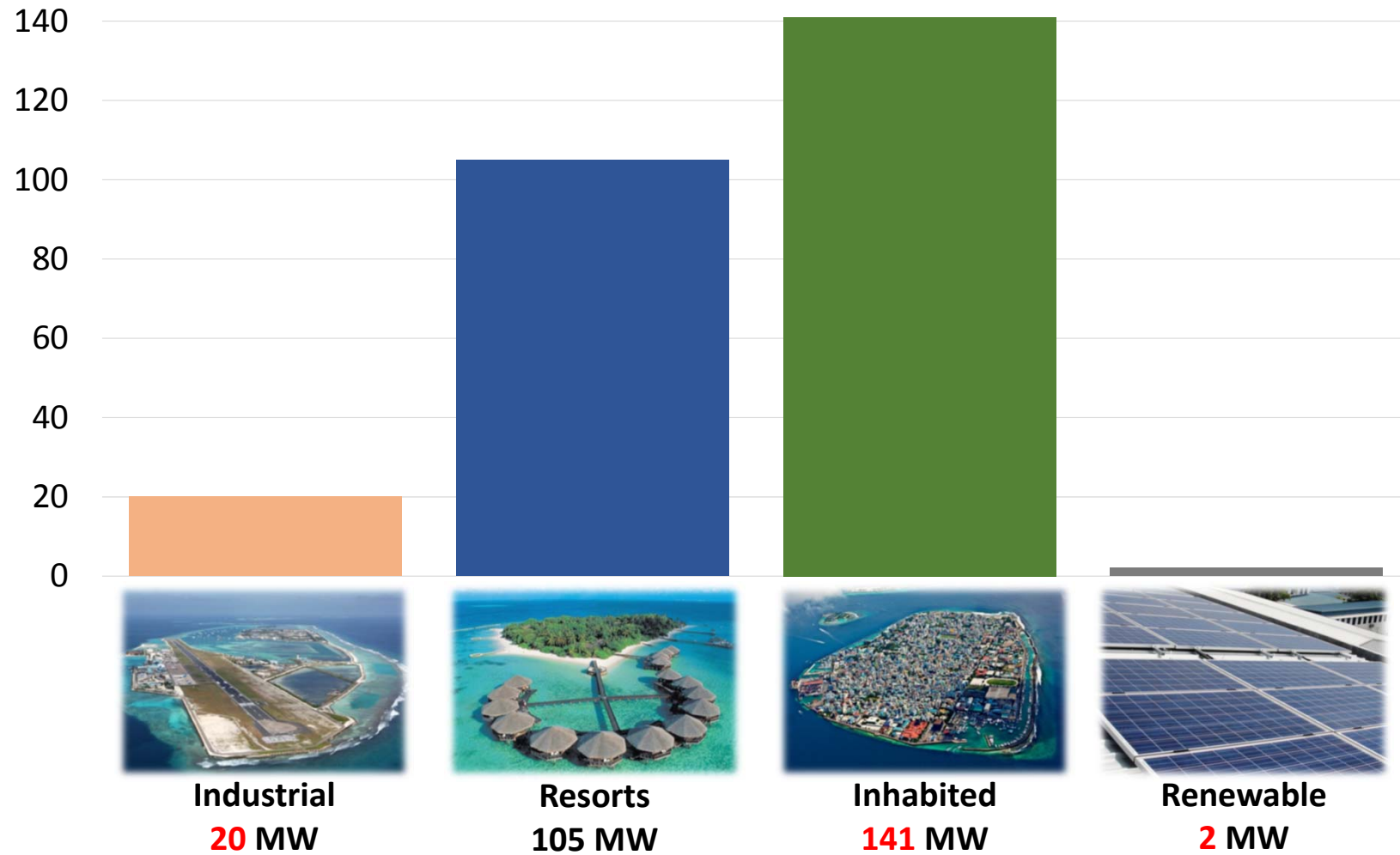
SECTOR HIGHLIGHTS



- Depend almost entirely on foreign imports
- Oil imports
 - USD 487M in 2013 and USD **487**M in 2018
- Most oil vulnerable country
 - Close to 31% of GDP spent in 2018
- 2018 CO2 emissions was
 - **1.3** Million tCO₂eq & **4.0** tCO₂eq/person/year



ELECTRICITY INSTALLED CAPACITIES



Total Installed Capacity : 268 MW



GOVERNANCE AND OPERATION

Ministry of Environment

Maldives Energy Authority



STELCO



MWSC



FENAKA



Consumers

INTRODUCTION

STATE ELECTRIC COMPANY LIMITED was
incorporated in **1997**



14kW
Initial Capacity

61,455
Customers

4
Water Networks

129,776kW
Current Capacity

35
Power Systems

1
Bottling Plant

POWER GENERATION

Our principle power is derived from diesel generator sets. Depending on island load profile, multiple generator sets are used in combination with synchronization panels to deliver the power.

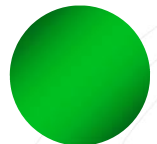
Total Capacity is 129MW



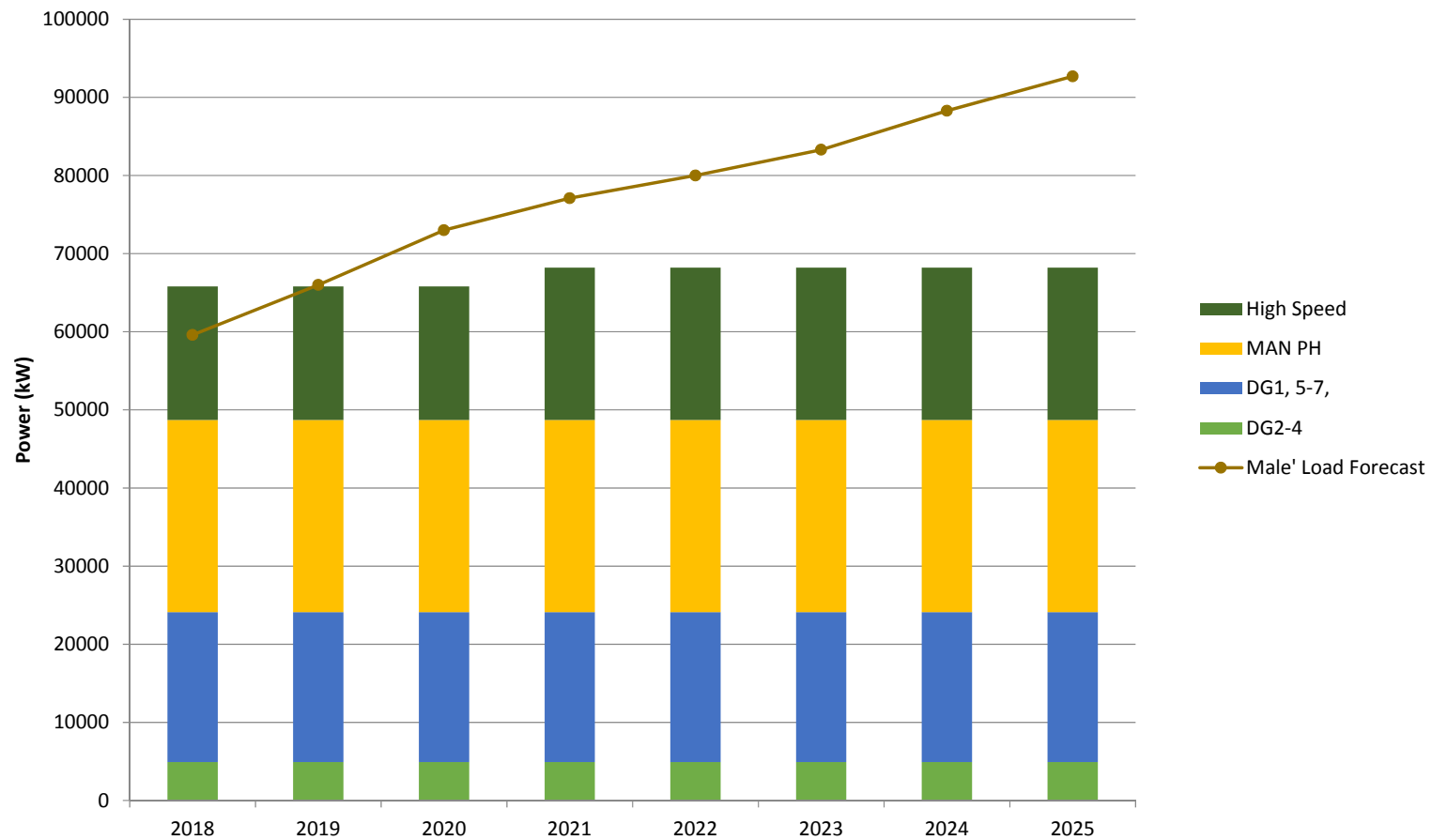
Male' Capacity is 78MW



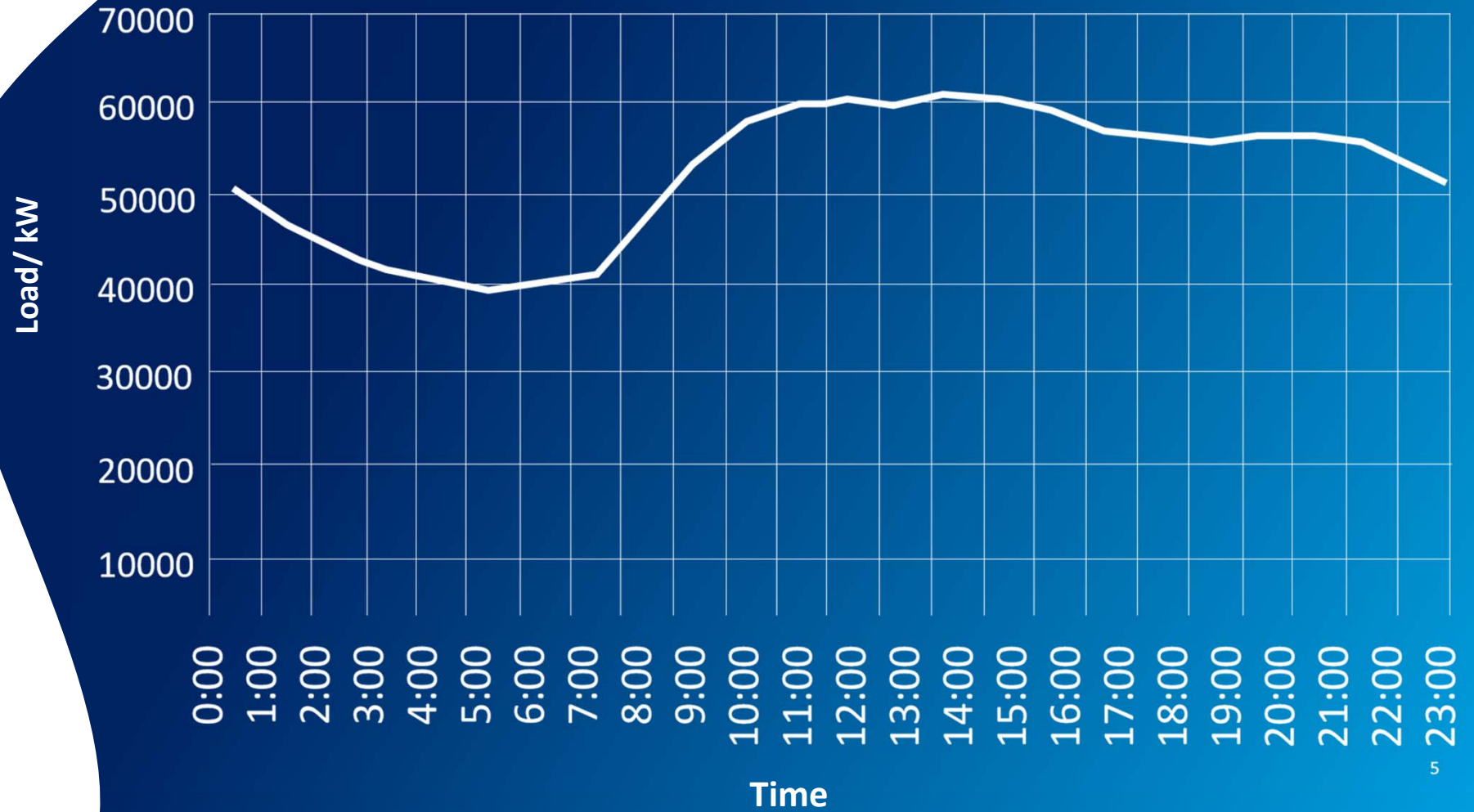
Solar PV in Grid is 3.3MW



Male' Generation Capacity Vs Load Demand



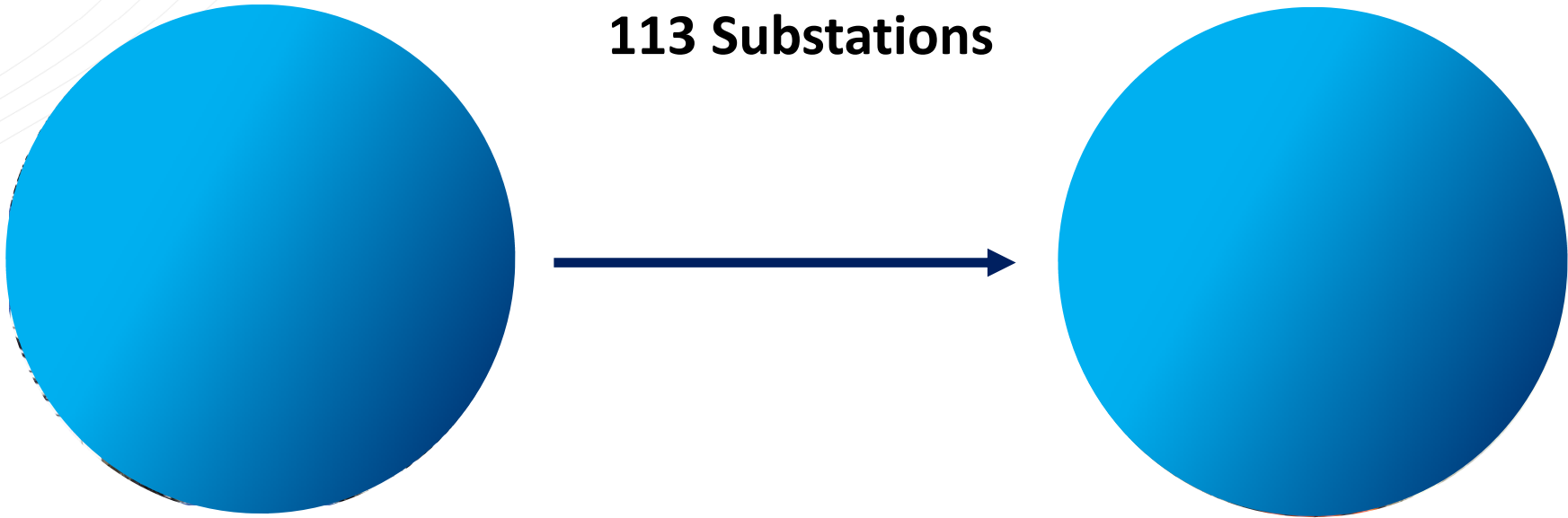
MALE' LOAD PROFILE



DISTRIBUTION SYSTEM

Voltages- 400V , 11,000V , 132,000 V

113 Substations



RE POLICY INITIATIVES

- Feed-in Tariff was introduced in 2011
- Net metering introduced in December 2017
- Duty exemption for RE products
- Low interest finance opportunities

CHALLENGES

- Current tariff rate lower than production cost- low incentive to adopt RE
- Space constraints
- Grid Limitation (only 30% penetration level set)
- Low awareness



Journey towards Renewable Energy and Smart Grid in Maldives

LOCATION MAPS

MALE' THE CAPITAL CITY



LOCATION MAPS

LOCATIONS FOR PV INSTALLATION IN MALE'





1. Maldives Centre for Social Education
2. Hiriya School
3. Thaajuddeen School

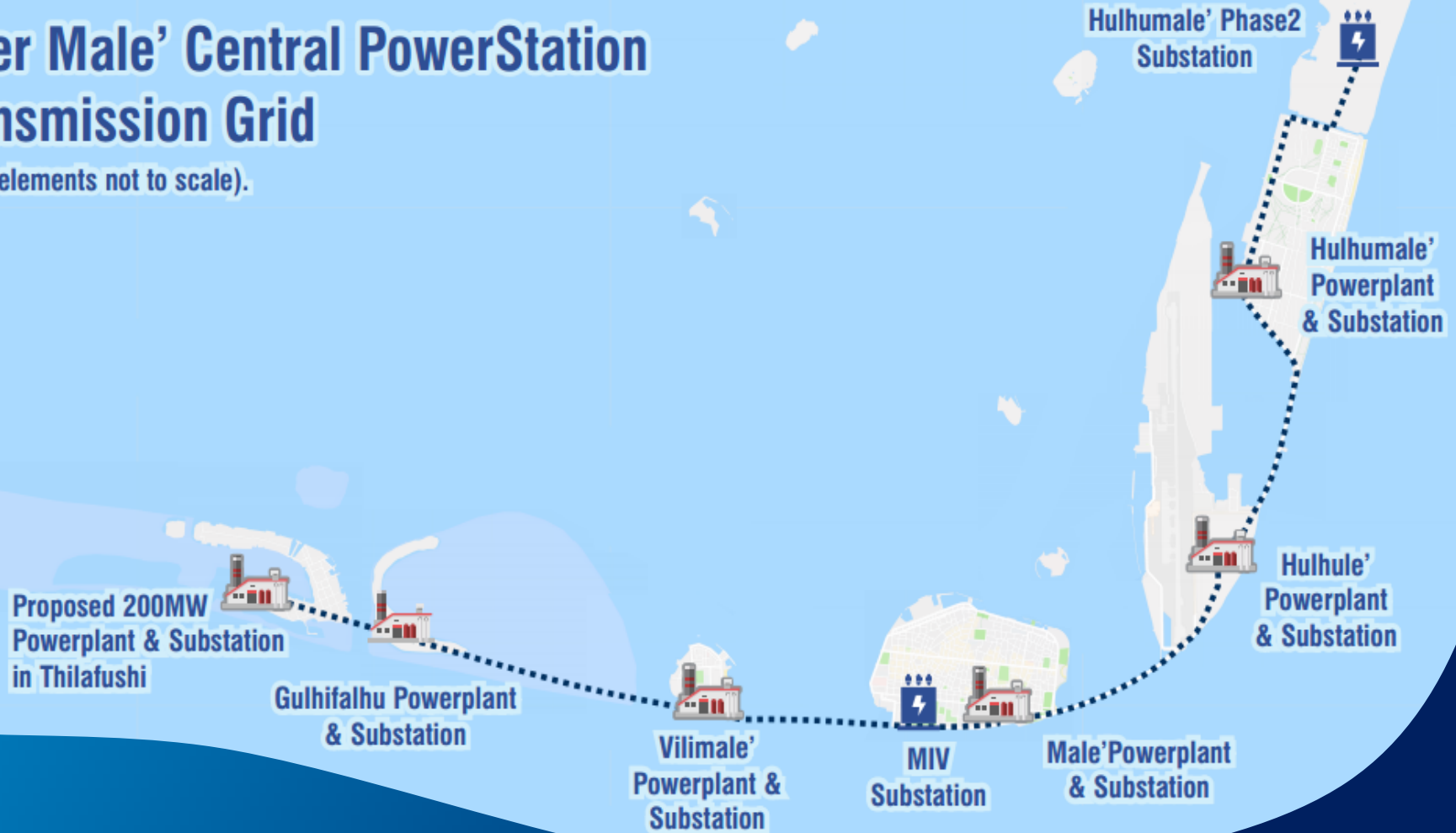


STELCO BUILDING 45 kWp



Greater Male' Central PowerStation & Transmission Grid

(Note: Map elements not to scale).



UPCOMING PROJECTS



● Smart Metering

- Automated Meter Reading
- Prepaid services
- Remote service cutoff

● ERP system

● Distribution Substation Automation

- Reduce power restoration time
- Real-time load monitoring
- Battery system for peak shaving



SMART GRID - CHALLENGES

- Lack of skill and knowledge in utilities
- Testing and Communication of Smart Meter
- Lack of preparedness from the Industry
- Integration with existing IT System
- Adoption of Smart Grid Regulations

**KADRIN CHHE LA NAMEY SAMEY KADRIN
CHHE LA**

