



Progress of Renewable Energy Development in Chinese Taipei



October 22-26, 2019
Seoul, Republic of Korea

Contents

I.

Energy Situation

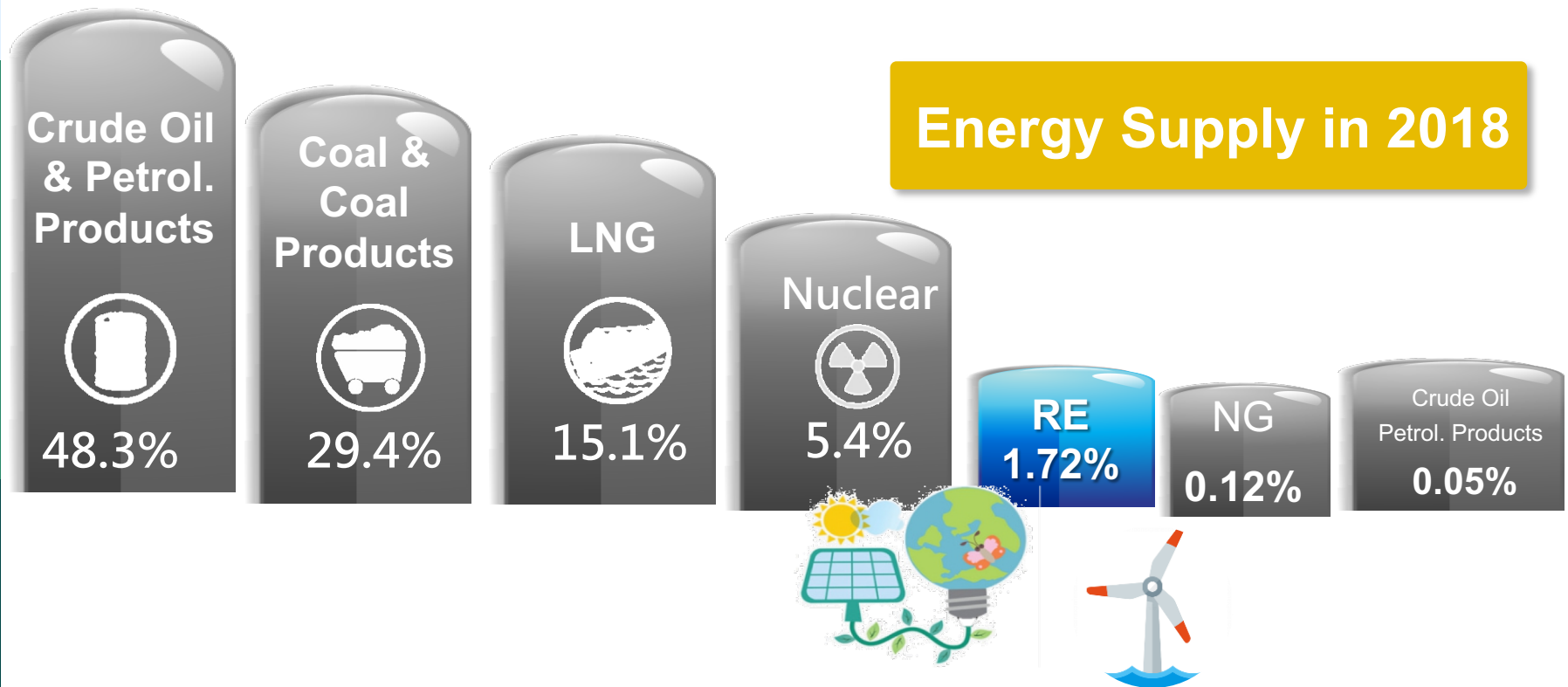
II.

**Key Policy Measures
For RE Development**

III.

**Main Challenges and
Opportunities**

Energy Situation - Current Power Mix



Energy Situation - Current Power Mix

Total Electricity Generation in 2018

84.2%



45.5%



34.3%



4.4%



1.6%



1.3%



1.0%



0.6%



0.1%

Total Power Generation

275_{TWh}

Of which fossil fuels

84.2Percent

10.0%

4.6%

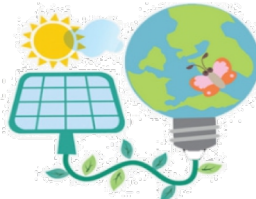
1.2%



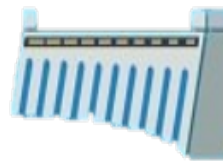
Thermal power



Nuclear



Renewable energy

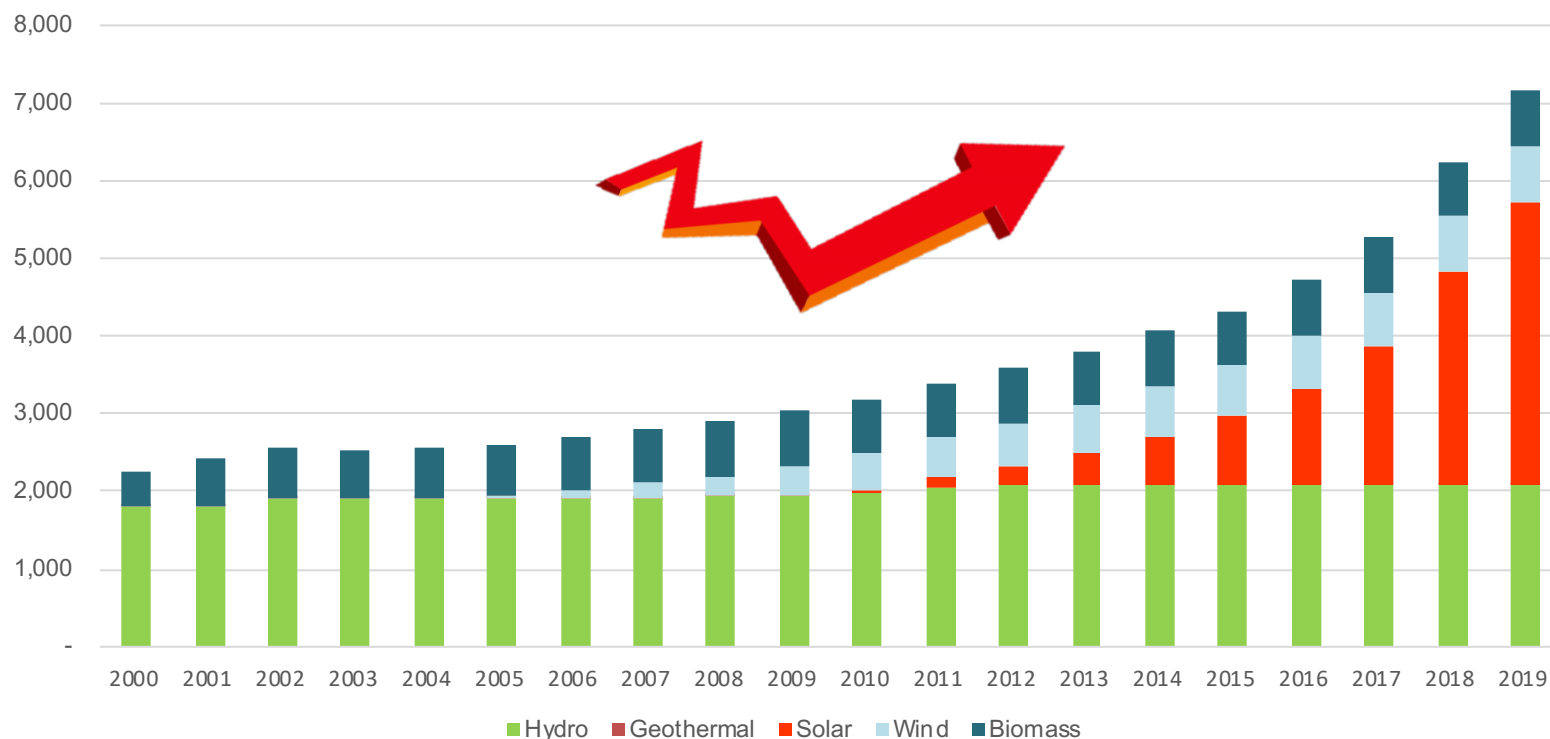


Pumped hydro

Progress of Renewable Energy Development

■ Current status of renewable energy development

- Current RE share in electricity generation: **12.7 TWh** (Dec. 2019)
- Cumulative RE installed capacity: **7,163 MW** (July 2019)



Renewable Energy Target

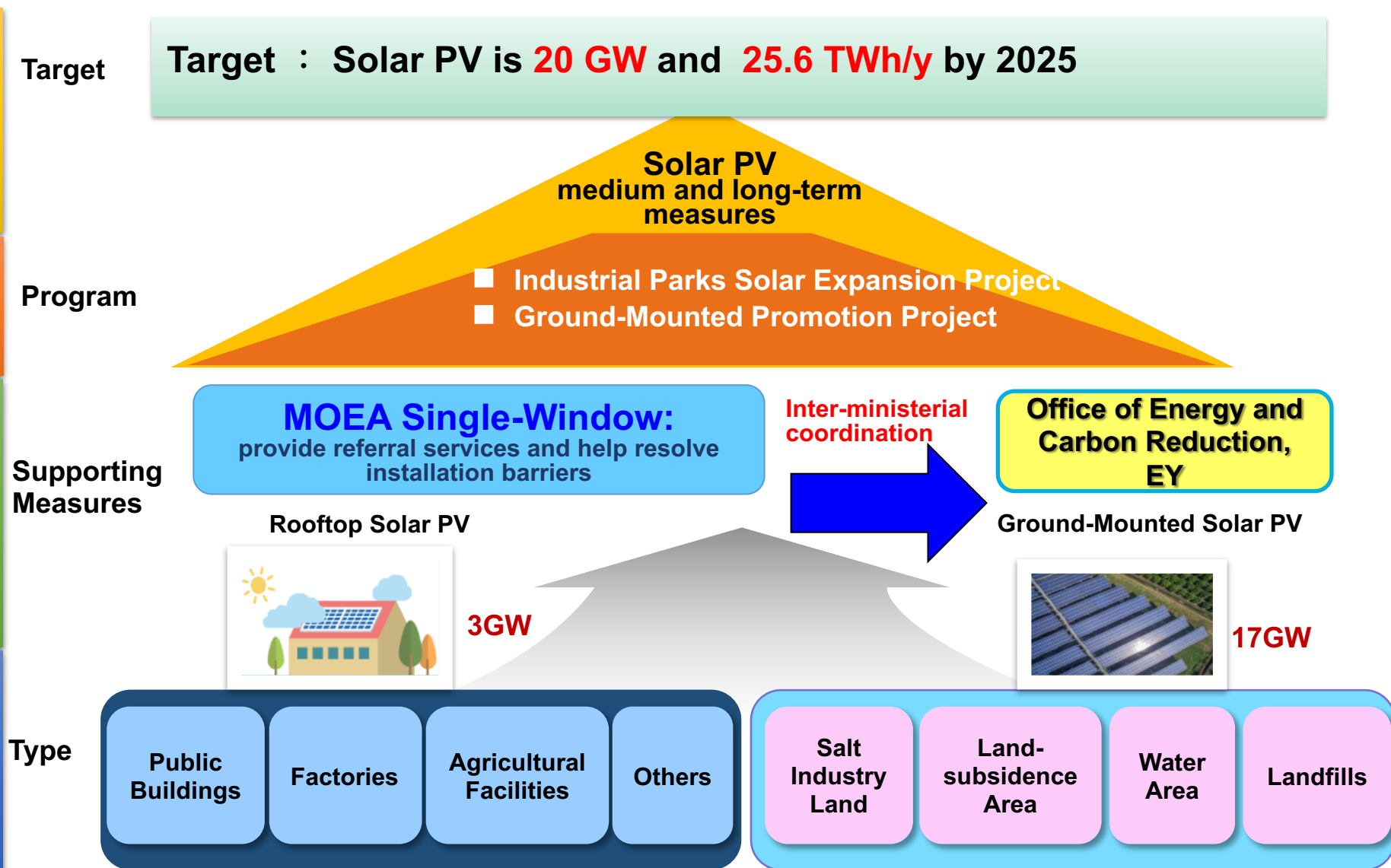
■ Renewable energy target in Chinese Taipei

- ❑ RE targets in electricity: 20% in RE power generation in 2025
- ❑ Target for solar PV in 2025: 20,000 MW
- ❑ Target for offshore wind in 2025: 5,738 MW

| | | Power Capacity (MW) | | | Electricity Generation (TWh) | | |
|-------------|----------|---------------------|---------|---------|------------------------------|---------|---------|
| | | 2018 | 2020(f) | 2025(f) | 2018 | 2020(f) | 2025(f) |
| Solar PV | | 2,738 | 6,500 | 20,000 | 27 | 81 | 256 |
| Wind | onshore | 696 | 814 | 1,200 | 17 | 19 | 28 |
| | offshore | 8 | 976 | 5,738 | 0.3 | 35 | 207 |
| Geothermal | | 0.03 | 150 | 200 | 0 | 10 | 13 |
| Biomass | | 727 | 768 | 813 | 39 | 38 | 43 |
| Hydro Power | | 2,092 | 2,100 | 2,150 | 45 | 64 | 66 |
| Fuel Cell | | 0.3 | 22.5 | 60 | 0.03 | 2 | 5 |
| Total | | 6,260 | 11,331 | 30,161 | 127 | 249 | 617 |

Key Policy Measures for RE Development

■ Framework of Solar PV Development Plan



Key Policy Measures for RE Development

■ Framework of Wind Power Development Plan

Target : Wind power is to reached **6.9 GW** by 2025.
23.5 TWh of electricity generation annually
and generate investment of **\$962.5 billion NTD**

Onshore **1.2 GW**
Offshore **5.7 GW**



Wind Power
Zonal Development

4-year Wind Power Development Plan

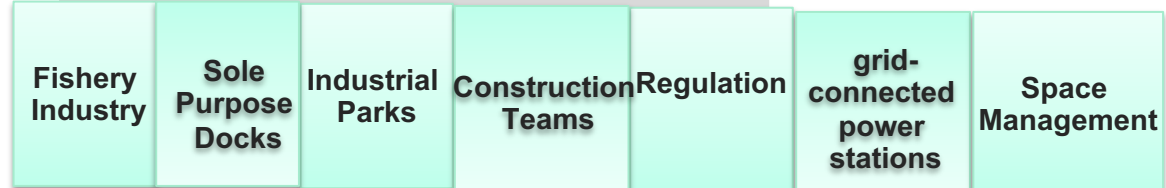
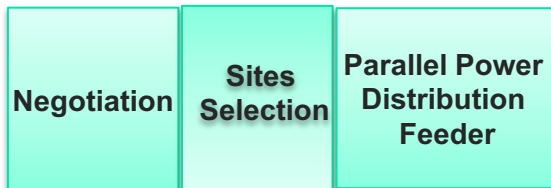
MOEA Single-window
→ Tracking progress and help
resolve installation barriers

→ Inter-ministerial
coordination

Office of Energy and
Carbon Reduction, EY

Onshore

Offshore



Supporting Measures

Main Challenges and Opportunities

Opportunities

- Clear development target
- Complete industry chain

Challenges

- Limited available lands
- Hard to integrate private lands
- Grid capacity needs to upgrade
- Environmental sensitive area
- Social acceptance
- The coexistence of offshore wind power and fishing industry



Thank you

Annex. FIT for Renewables

| Item | Type | Capacity (kW) | 2019 Jan.-June FIT (US ¢/kWh) | 2019 July-Dec. FIT (US ¢/kWh) |
|-----------------|-----------------------|-----------------------|-------------------------------|-------------------------------|
| PV ¹ | Roof Type | $\geq 1 \sim < 20$ | 19.32766 | 19.32766 |
| | | $\geq 20 \sim < 100$ | 15.30833 | 15.02766 |
| | | $\geq 100 \sim < 500$ | 14.39166 | 14.11833 |
| | | ≥ 500 | Connected ² | 15.634 |
| | Ground Type | ≥ 1 | Non-connected ² | 14.104 |
| | | | Connected | 15.18666 |
| | Floating Type | ≥ 1 | Non-connected | 13.698 |
| | | | Connected | 16.44833 |
| Wind Power | Onshore | $\geq 1 \sim < 30$ | 26.253 | |
| | | ≥ 30 | 8.74933 | |
| | Offshore ³ | — | 18.3866 | |
| Hydropower | Stream-Type | — | 9.4416 | |
| Geothermal | — | — | 17.31867 | |
| Biomass | No biogas equip. | — | 8.588333 | |
| | With biogas equip. | — | 16.958 | |
| RDF | — | — | 12.98167 | |
| Others | — | — | 7.03566 | |

Source: Bureau of Energy

• Exchange rate: USD 1 = NTD 30

¹ The rate including the processing fee for recycling solar modules (USD 33/ KW).

² Connected to the EHV Grid; Non-connected to the EHV Grid

³ For offshore wind power, another option of US¢18.386/kWh for the first 10 years and US¢13.807/kWh for the second 10 years is also available in 2019.