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The use of renewable energy in Vietnam – status quo and challenges

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The use of renewable energy in Vietnam – status quo and challenges

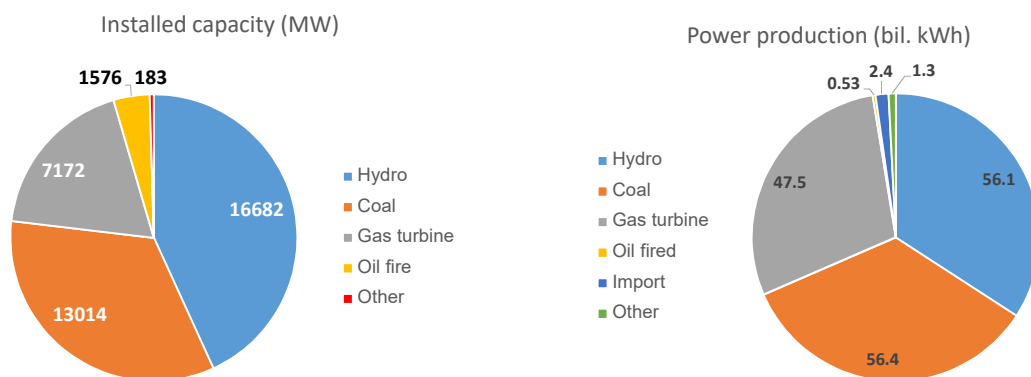
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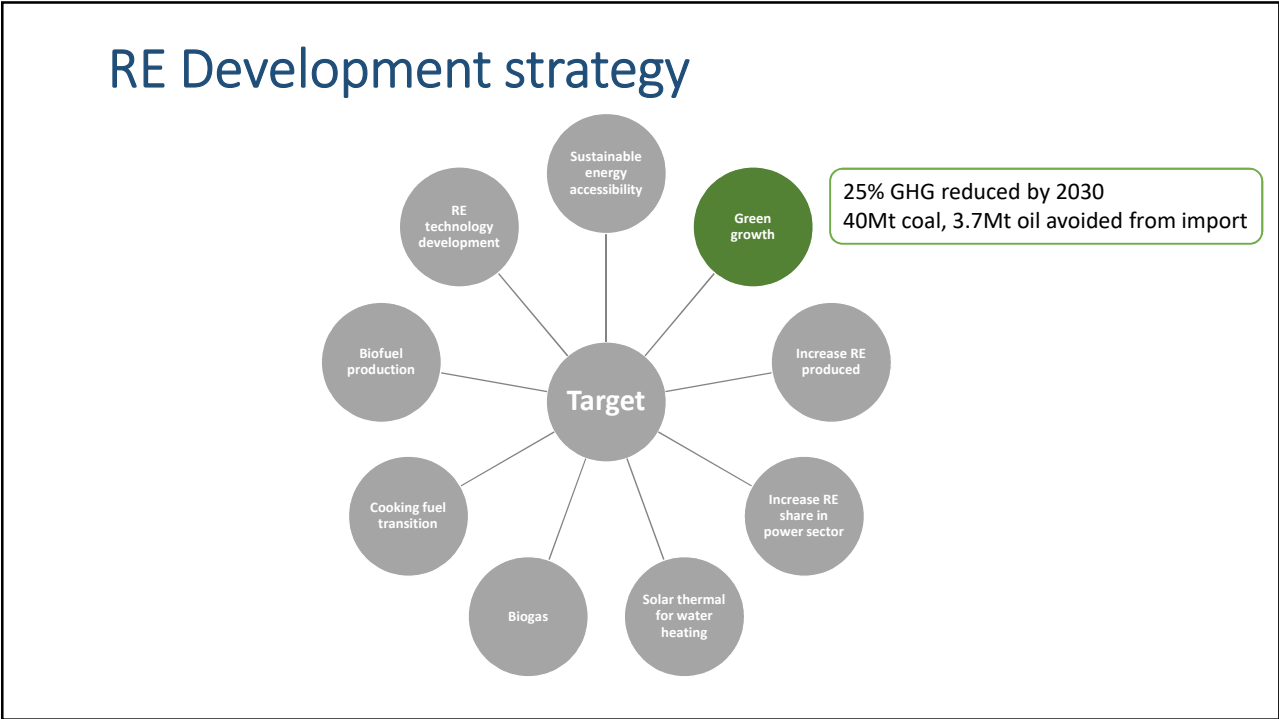
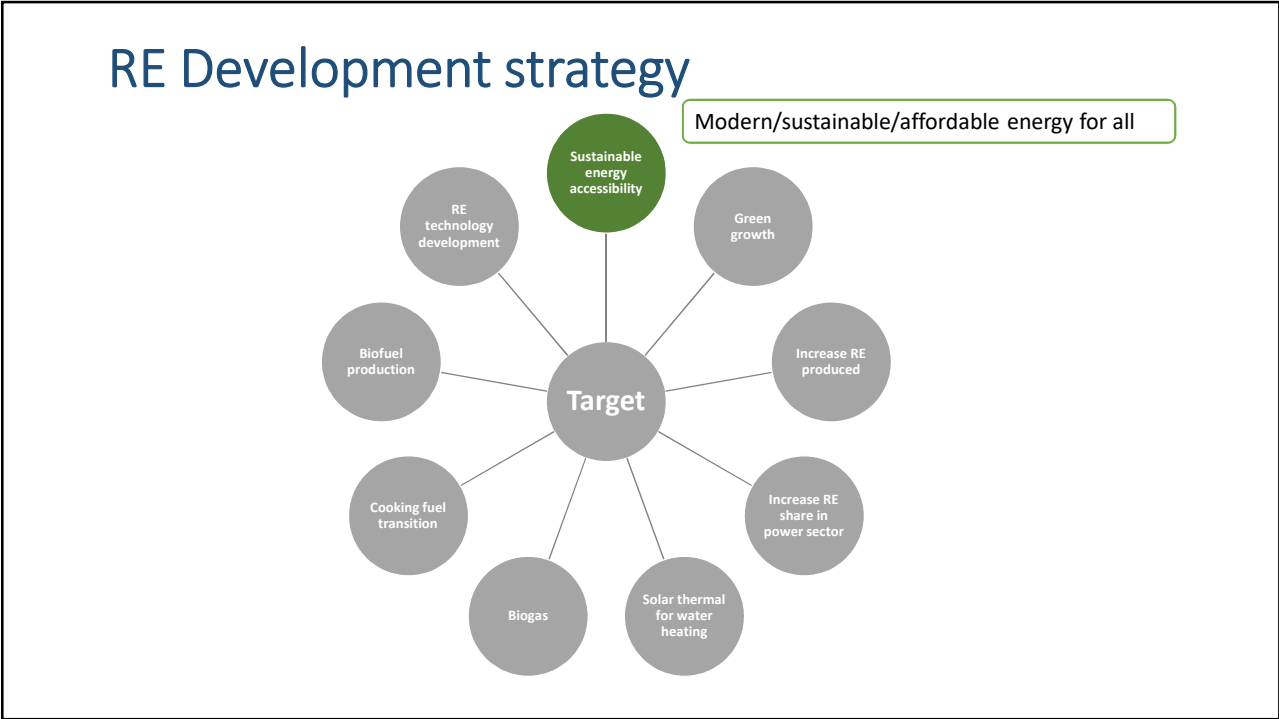
Sustainable Cities - Context of Energy Transition
Hanoi, 6 November 2017

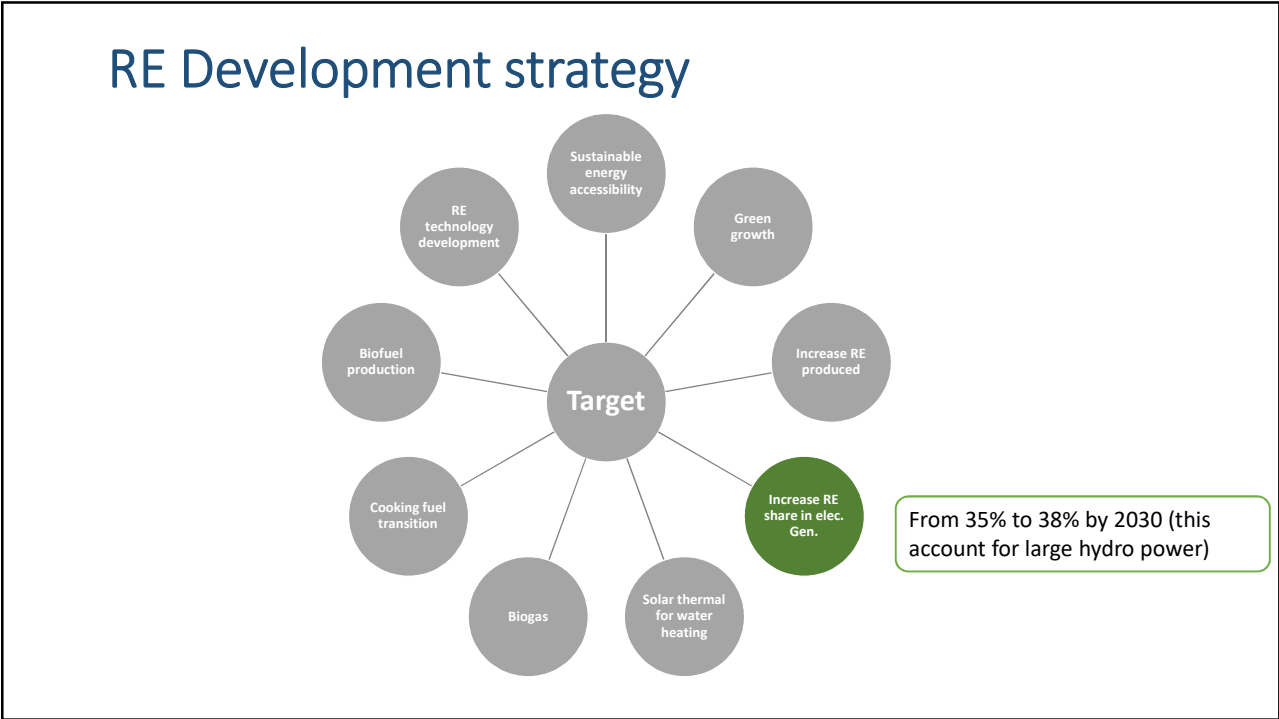
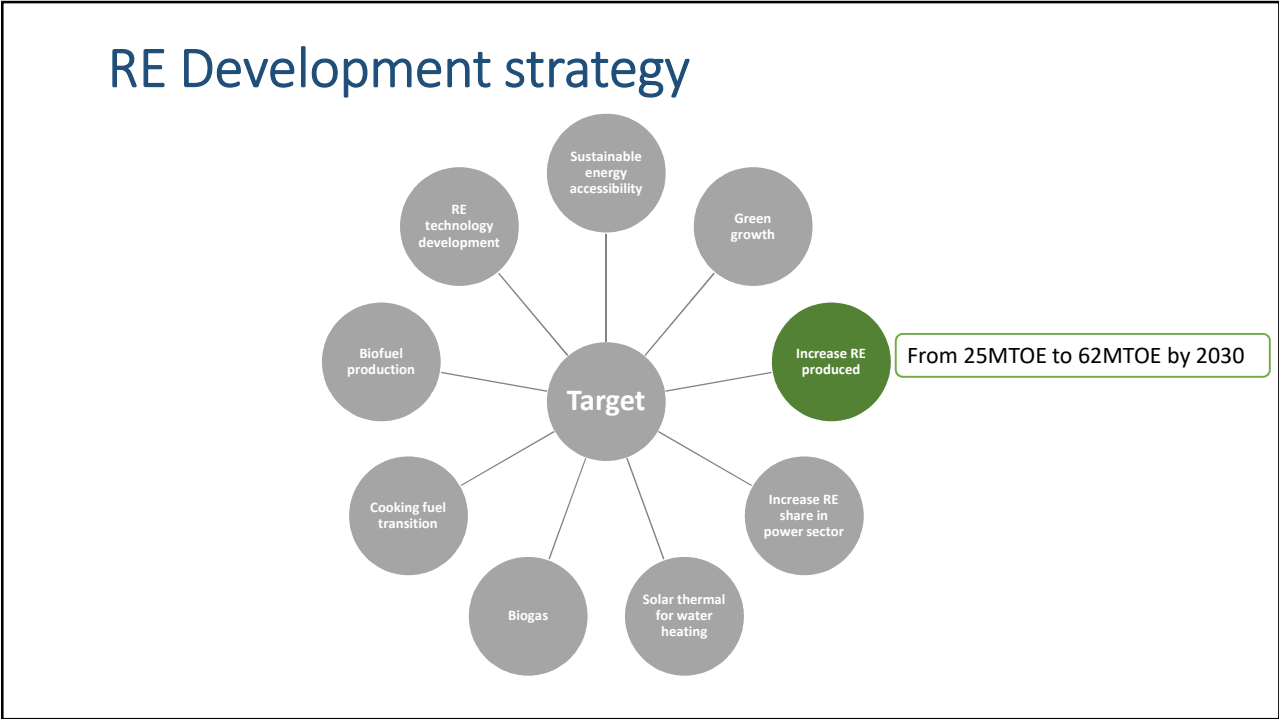


RE in current energy mix (2015)



Source: Vietnam power system and power market operation 2015





RE Development strategy

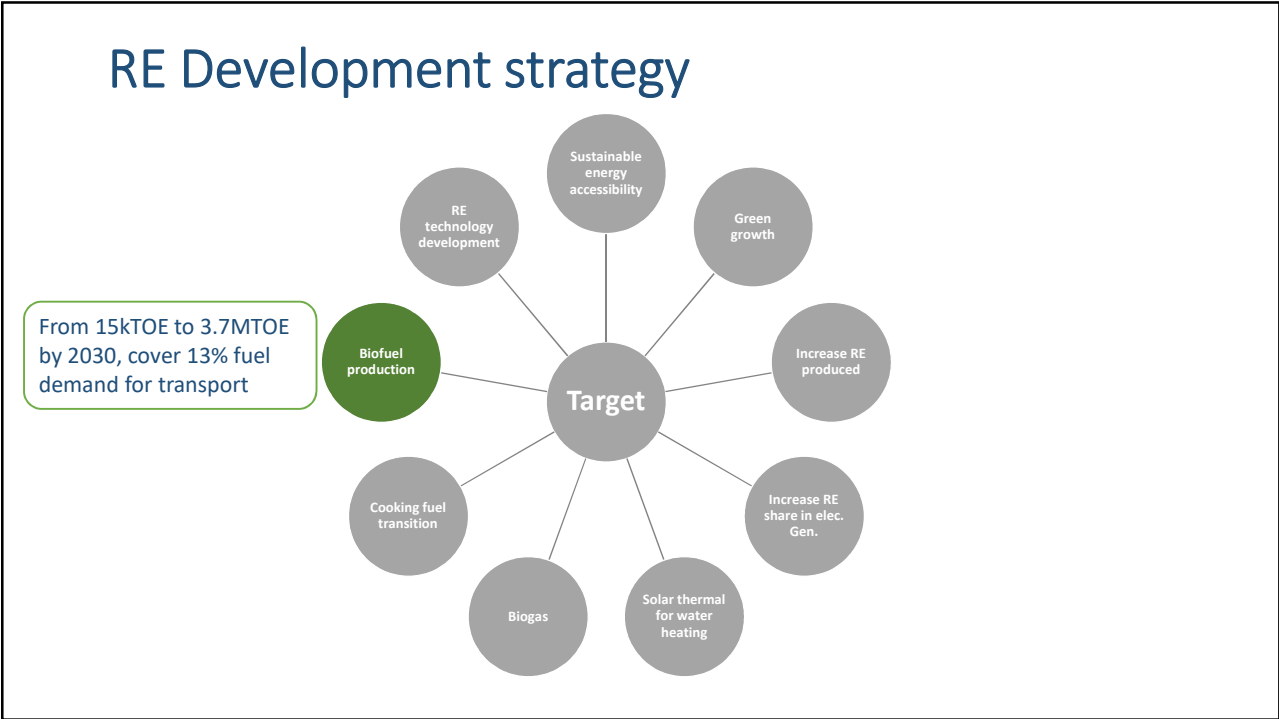
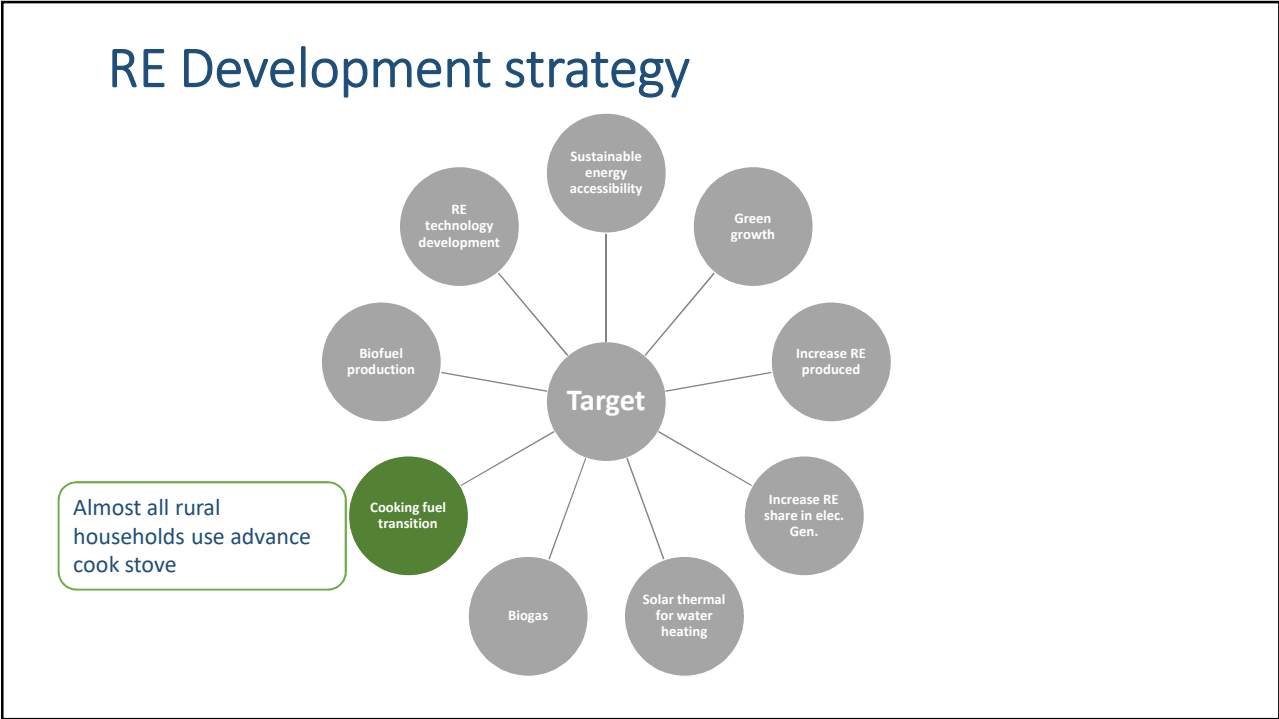


Area from 3 km² to 22km², used by 26% households by 2030, supply 3.1 MTOE

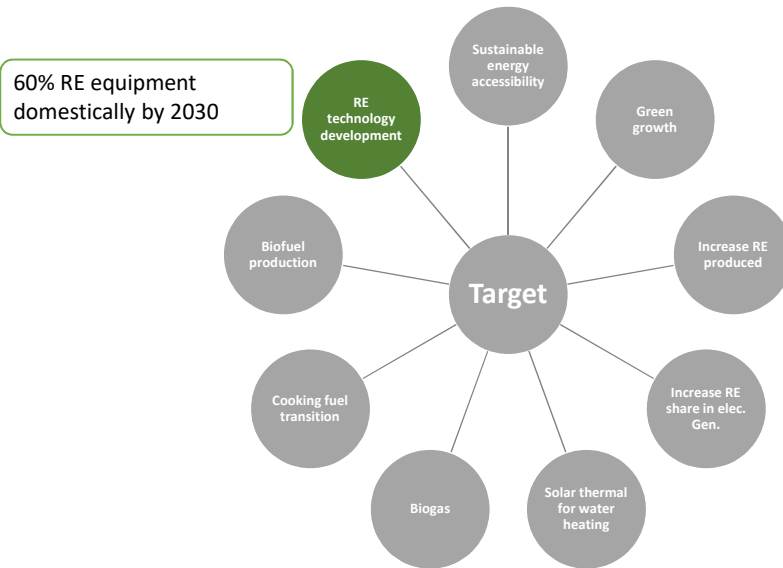
RE Development strategy



From 4 mil m³ to 60 mil m³ by 2030



RE Development strategy



RE potential in Vietnam

	Biomass/ Biogas	Wind	Solar	Small hydro	MSW	Geothermal
Expected potential (MW)	8,500	27,000	130,000	7,000	400	300-4000
Existing	150	154	0	2300	2	0

Source

Biomass, Solar: N.D.Cuong. 2016. calculated from development targets that mentioned in (Decision No. 2068/QD-TTg)

Wind: WB.2011. wind energy mapping

SHP: MoIT. 2015. Review on SHP development and IE. 2011. REMP, technical report

MSW, Geothermal: IE. 2011. RE development master plan, technical report

Mapping RE resources in Vietnam

- Project supported by WB and ESMAP's RE Resource Mapping Initiative
- Duration: 2013 - 2019
- Mapping Wind, Solar, Biomass, Small Hydro
- Progress
 - Small Hydro: GIS data on existing, potential
 - Wind mapping: map available on IRENA Global Atlas
 - Solar: map available on global solar atlas, site installation report
 - Biomass: phase 1 on-going

Info from https://www.esmap.org/re_mapping_vietnam

Existing support mechanisms for RE



Decision
18/2008/QĐ-TTg
Circular
34/2014/TT-BTC
ACT 2017 ~9.7\$c



Decision
37/2011/QĐ-TTg
20yrs PPA
Preference on
loan, tax, land
FIT = 7.8 \$c/kWh
Proposed FIT
8.77\$c on-shore
9.95\$c off-shore



Decision
24/2014/QĐ-TTg
20yrs PPA
Preference on
loan, tax, land
CHP FIT = 5.8\$c
ACT 2016 ~ 7.5\$c



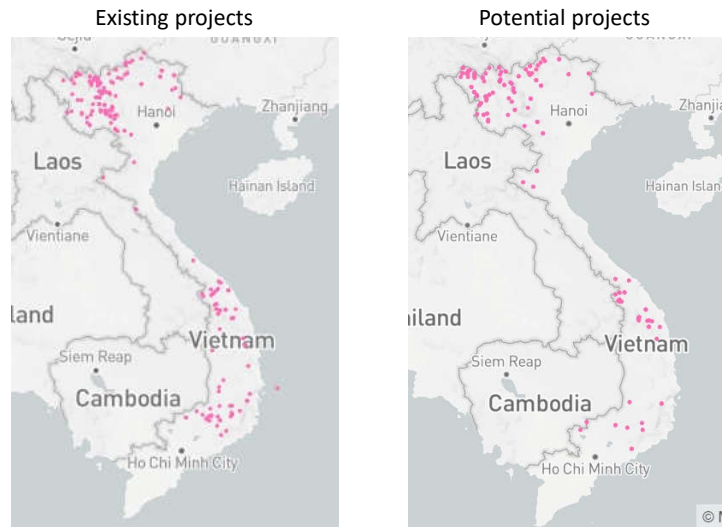
Decision
31/2014/QĐ-TTg
FIT burning =
10.05\$c
FIT gas = 7.28\$c



Decision
11/2017/QĐ-TTg
20yrs PPA
Preference on
loan, tax, land
FIT = 9.35 \$c/kWh
Net metering
On-grid and
rooftop

Small Hydro is the most exploited resource

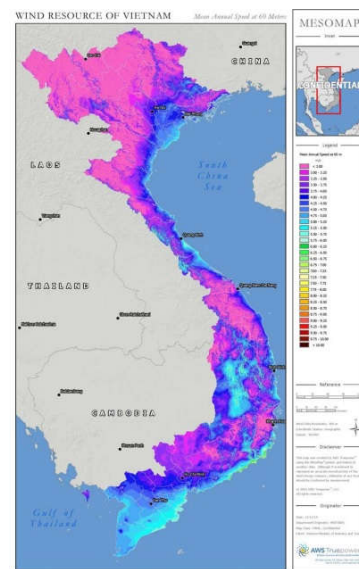
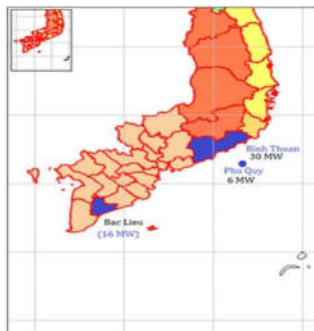
- Small hydro < 30MW
- Around 250 projects
- Total installed capacity (2015) ~ 2300MW
- Reaching potential
- Environmental and social concerns



Source:

Wind development has good momentum

- 4 operating wind project (159 MW)
- Cover 2.7% wind power development target by 2030
- Wind project map <http://qizenergy.org.vn/en/blog/map-renewable-energy-projects-Vietnam>
- Target: 800MW by 2020; 2,000MW by 2030



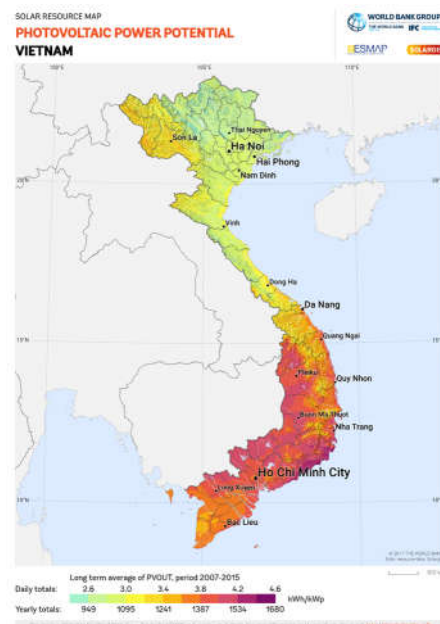
Bioenergy still facing difficulties

- **Biomass to power:** 150MW CHP in 40 sugar mills. dedicated biomass power plant/co-firing plant not yet exist.
- **Biofuel:** bioethanol facilities is closing, E5 not used domestically
- **Biogas:** household scale and industrial scale exist
- **Waste to power:** first plant (Nedo 2MW) just completed



Solar is on the spotlight

- First solar PV project in Vietnam
Thien Tan 19.2MW in Quang Ngai Province
Ground breaking in 2015
- PV project is attracting investors
- Rooftop solar for water heating commercialized
- Rooftop PV: initial stage
- Target: 850MW by 2020, 4000MW by 2030.



Challenges for RE development in Vietnam

Technical

- Project development capacity
- Information/data availability
- Technology dependence
- Infrastructure readiness

Non technical

- Low electricity price
- Large investment required
- Need national planning for RE
- Policy/mechanisms more effective

Summary

- Vietnam has diversified and abundant RE resources
- Current development not yet meet potential
- Supporting mechanisms to each RE resources are in place
- Ambitious targets for RE development
- There are technical and non technical barriers for RE



Thank you for your attention!