WEBINAR

SESSION I

Trade and Climate Change: How can trade policy maximize developing countries benefits from a clean energy transition

Thursday 22 July 2021 | 2-3 p.m. CEST

IISD
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Driving demand: Electric Vehicles and Trade in Raw Materials

Richard Bridle

22nd July 2021

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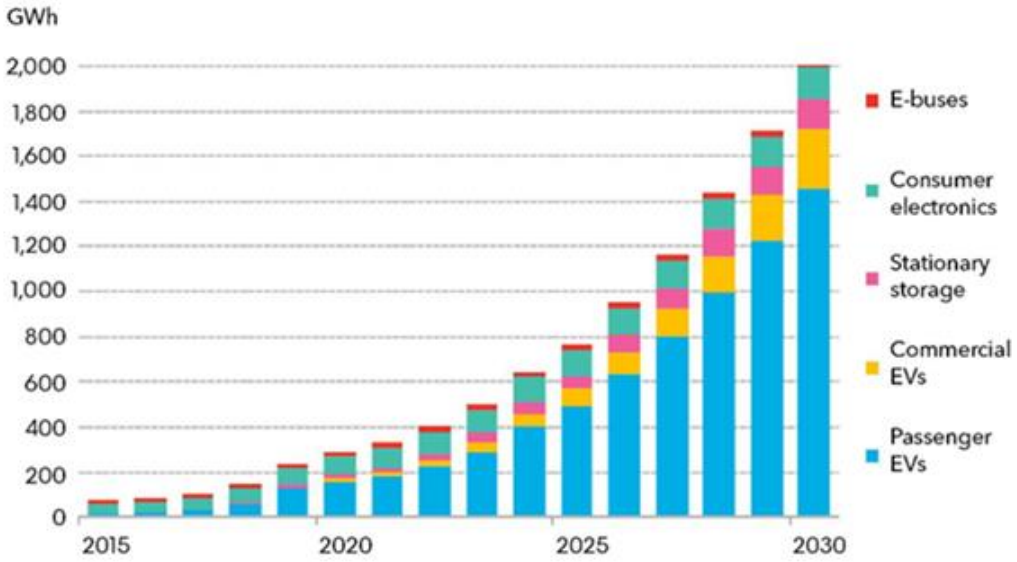
The EV Boom

- Plug-in and full electric vehicles average annual growth rate of 45% between 2015 and 2019
- Estimated sales growth of 29% per year until 2030
- There will be demand for lots of batteries and lots of raw materials

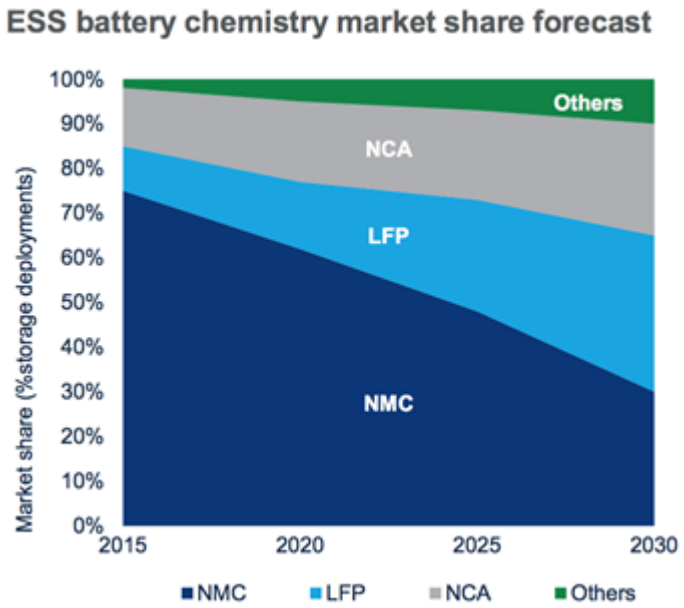
Question:

- How should developing country producers design their trade policy to cope with this trend?



Source: Bloomberg

Battery raw materials



Lithium nickel manganese cobalt oxide (NMC), Lithium iron phosphate (LFP), Lithium nickel cobalt aluminum oxide (NCA)

Source: Wood Mackenzie

- In 2018, raw materials accounted for about 10% of total EV production costs
- Two of the key minerals for battery production are lithium and cobalt, along with other minerals, including manganese and nickel.

Question:

- Technology matters: Whether or not cobalt, manganese or nickel benefit will partially depend on which technology wins

Lithium: Chile

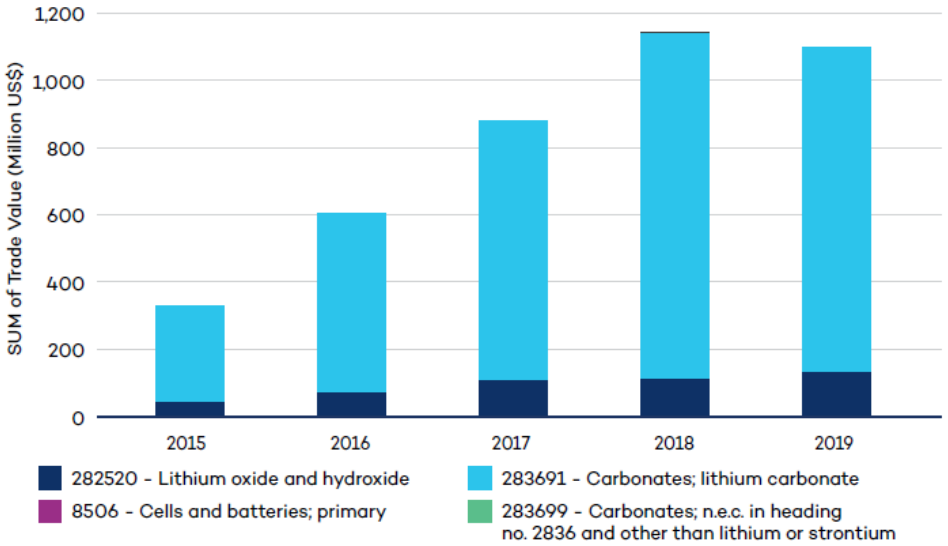
Context:

- Major producer with approximately half of global reserves
- Demand has outstripped supply. Limited investment in new projects
- Steps taken to move up the battery value chain but tentative

Trade issues:

- Oversupply risk
- Local content requirements
- Regulated pricing

Figure 2. Chile lithium exports by World Customs Organization Harmonized Item Description and Coding System (HS) codes 8506, 283699. 283691, 282520



Source: Authors' analysis based on Comtrade data..

Cobalt: DRC

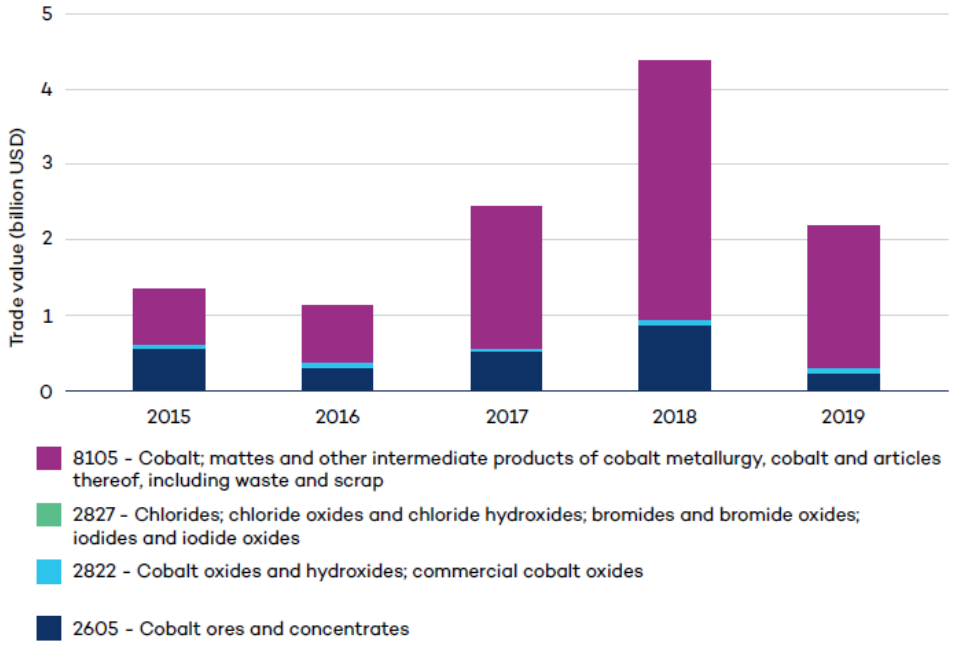
Context:

- DRC represented about 71% of global cobalt production in 2019 and holds just over 50% of global reserves
- China is major importer of cobalt
- in 2015, nearly half of cobalt exports (by value) were ores and concentrates. By 2018 was less than a quarter

Trade issues:

- Perceptions of unethical practices in mining sector leading to pressure to find other sources
- Supply chain traceability
- Export bans

Figure 4. DRC cobalt exports by HS codes 2605, 2822, 2827, and 8105



Source: Authors' analysis based on Comtrade data.

Summary of trade related issues

- Will there be a bust?
- Risk of increases in unregulated or insufficiently regulated activities lead to consumer bypass or avoid
- Need for policy to strike a balance between adding value, creating jobs and increasing production. Policies include:
    - LCRs. 90% of resource rich countries have LCRs despite strict conditions implied by trade agreements
    - Export restrictions: used and controversial export bans, quotas, duties and taxes, or mandatory minimum export prices
    - Avoiding boom and bust
- Understanding technology risk

How Can Trade Policy Maximize Benefits From Clean Energy Investment?

Presented by Christophe Bellmann

22 July 2021

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How Can Trade Policy Maximize Benefits From Clean Energy Investment?

Background

- Growth of renewable energy as the most significant development in the global electricity market over the last two decades.
- Costs have reached a point where renewable energy is competitive in almost all countries.
- Given the boom in the construction of renewable energy projects, national governments are increasingly keen to maximize local economic benefits.
- Renewable energy projects typically involve a mix of very specialized components sourced globally and components that can be sourced locally.
- In recent years, governments have used a range of instruments including trade policy measures to incentivize domestic production.

Typical bill of materials (BOM) for wind and solar projects

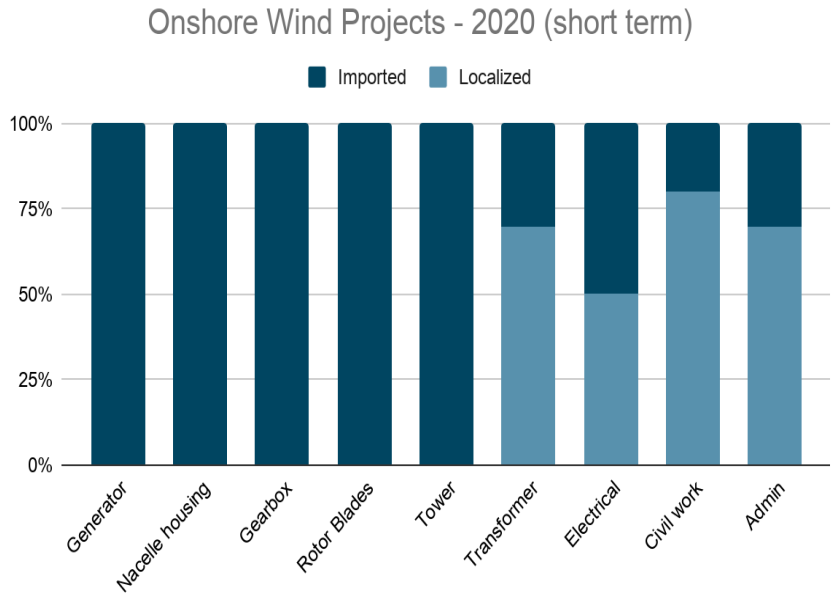
WIND

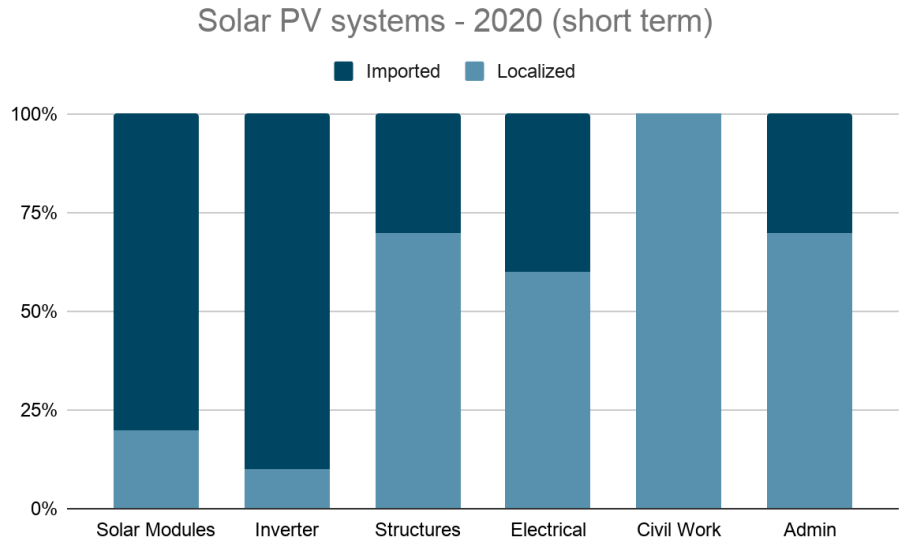
Components and component services incl. operations and maintenance	HS code	Indicative % of bill of materials	Usual sourcing
Wind turbine incl. generator, gearbox, and nacelle	8501.61; 8501.63; 8501.64;	~18	Global
Rotor blades incl. ball bearings	8412.90; 8482.10; 8482.30;	13–15	Global/local
Tower	7308.xx; 7326.xx;	16–18	Global/local
Transformer	8504.21; 8504.22; 8504.34; 8504.40;	~2.3	Global/local
Electrical	-	10–13	Local
Civil work (incl. instrumentation and control, engineering, procurement, and construction contracts)	-	15–37	Local

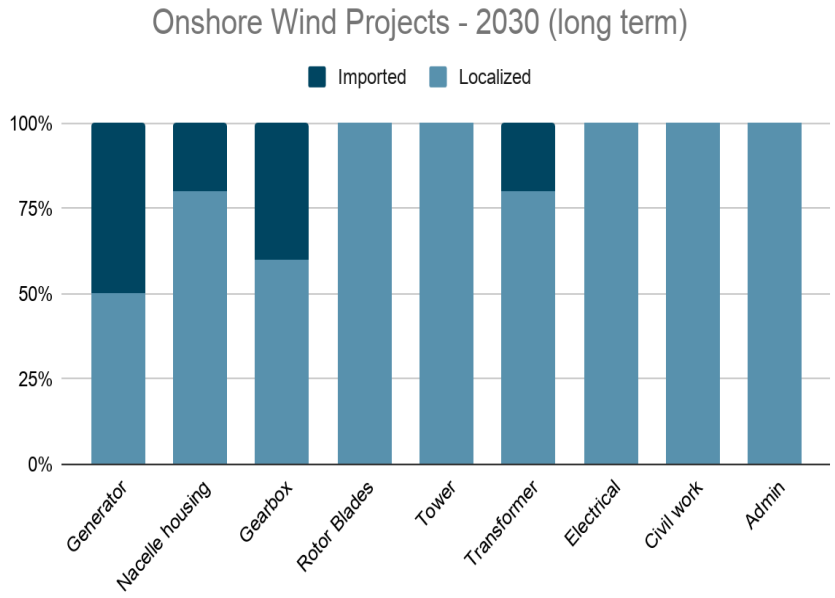
SOLAR

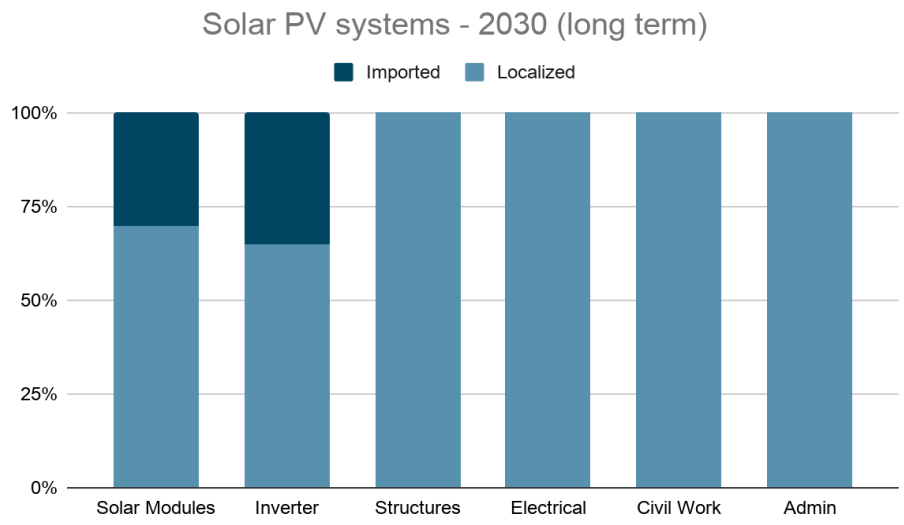
Components and component services, incl. operation and maintenance	HS code	Indicative % of bill of materials	Usual sourcing
Solar modules	8541.29; 8541.40; 8541.90;	30–50	Global
Inverter	8504.40; 8504.90;	5–10	Global/ local
Structure (racking & mounting)	7005.10; 7007.19; 7009.91; 7610;	7–10	Global/local
Electrical	8544.xx;	3–11	Global/local
Civil work (incl. instrumentation and control, engineering, procurement, and construction contracts)	-	7–13	local

Illustrative localisation scenarios for large developing countries









Trade policy implications in developing countries

Key questions

- ✓ Does the tariff structures reflect the potential to produce some of the components locally while importing those that need to be sourced internationally?
- ✓ What other factors come into play?
- ✓ What are the implications for trade negotiations at the regional, plurilateral, multilateral level?

- ➢ Productive capacity (using exports as a proxy)
- ➢ Existing tariff structure (bound and applied)

Average applied tariffs in top 30 low-income and low middle-income exporters

WIND

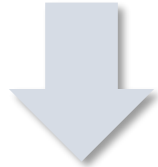
Components and component services incl. operations and maintenance	HS code	Usual sourcing	Average applied tariffs
Wind turbine incl. generator, gearbox, and nacelle	8501.61; 8501.63; 8501.64;	Global	**4.1**
Rotor blades incl. ball bearings	8412.90; 8482.10; 8482.30;	Global/local	**5.4**
Tower	7308.xx; 7326.xx;	Global/local	**12.4**
Transformer	8504.21; 8504.22; 8504.34; 8504.40;	Global/local	**6.9**
Electrical	-	Local	
Civil work (incl. instrumentation and control, engineering, procurement, and construction contracts)	-	Local	

SOLAR

Components and component services, incl. operation and maintenance	HS code	Usual sourcing	Average applied tariffs
Solar modules	8541.29; 8541.40; 8541.90;	Global	**3.8**
Inverter	8504.40; 8504.90;	Global/ local	**5.4**
Structure (racking & mounting)	7005.10; 7007.19; 7009.91; 7610;	Global/local	**15.8**
Electrical	8544.xx;	Global/local	**12.4**
Civil work (incl. instrumentation and control, engineering, procurement, and construction contracts)	-	local	

Trade policy objective matrix

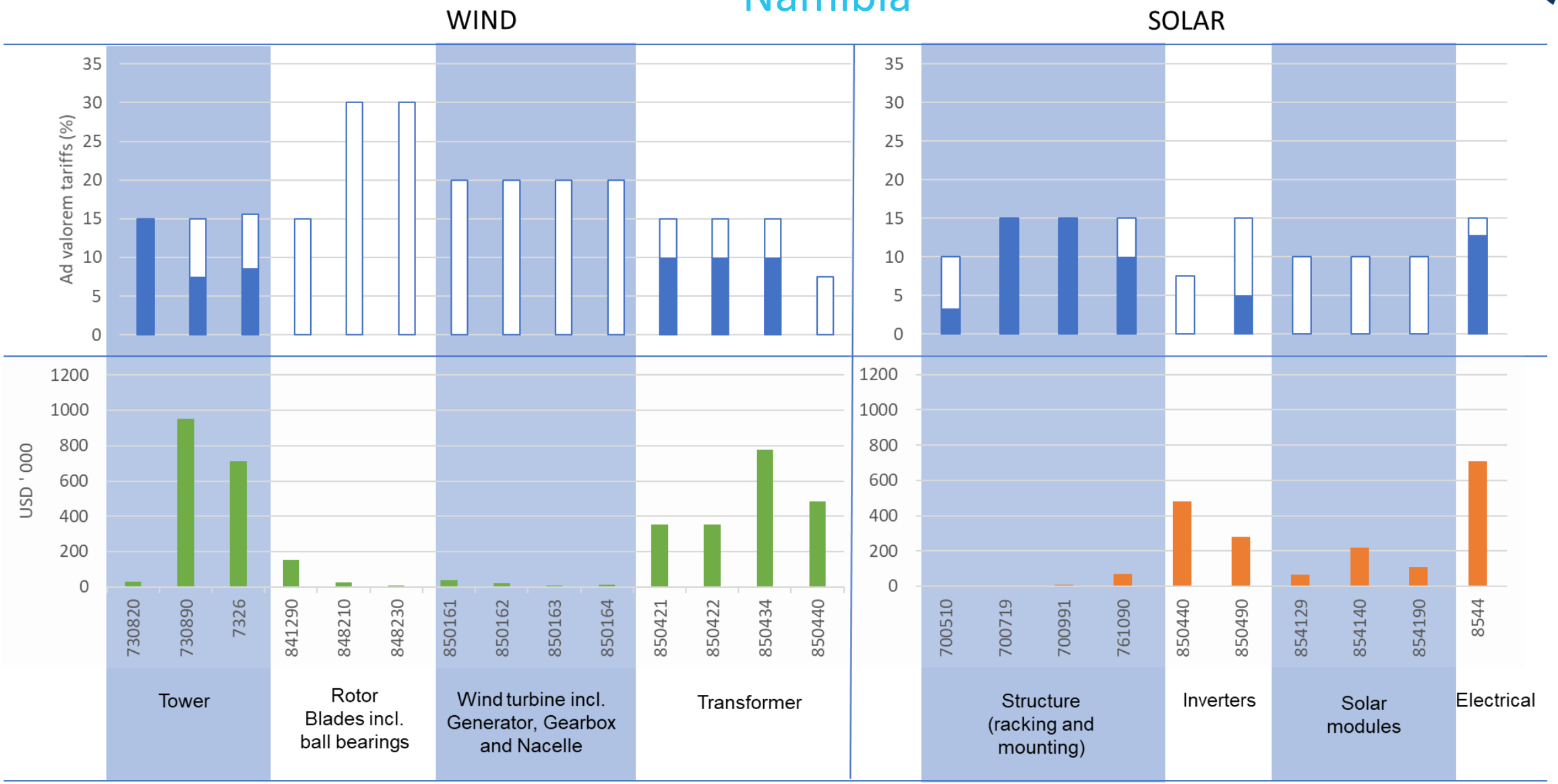
	Low to no tariff protection	Medium to high tariff protection
Existing production and export capacity	1. Export-oriented sector	2. Protection of domestic industry
No or limited production or export capacity	3. Import dependent	4. Use of tariffs to generate revenue



Tariffs applied to component type	Possible intended impacts	Potential unintended impact/cost	Balance of costs and benefits
Components suited to local production	Increased local sourcing	Increased project costs, reduced rate of renewable energy deployment	Positive
Moderately centralized components	Increased local production capacity		Strongly case dependent
Highly centralized components	Revenue raising		Mostly negative

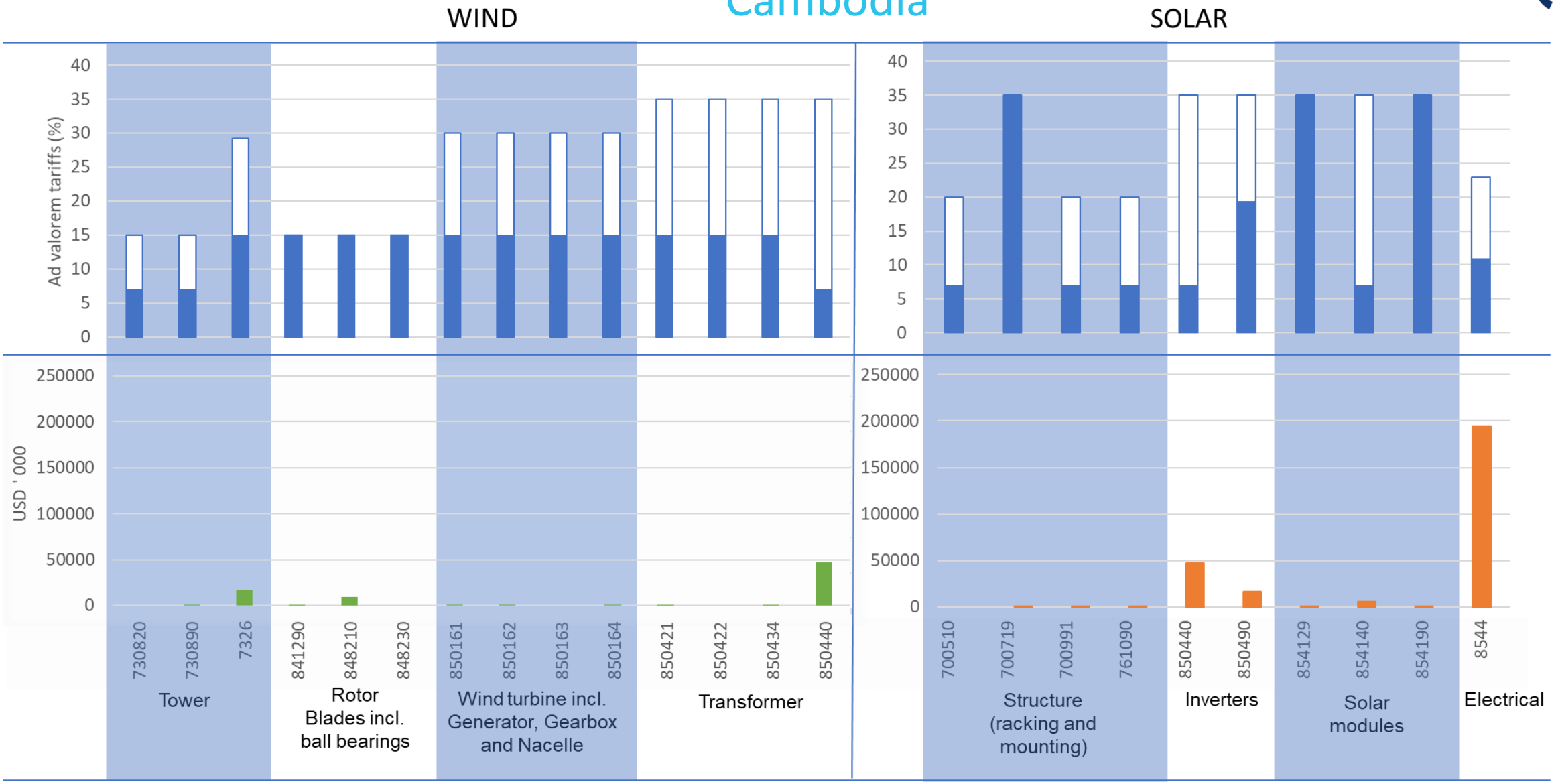
Tariffs and exports of wind and solar components in Namibia

Namibia



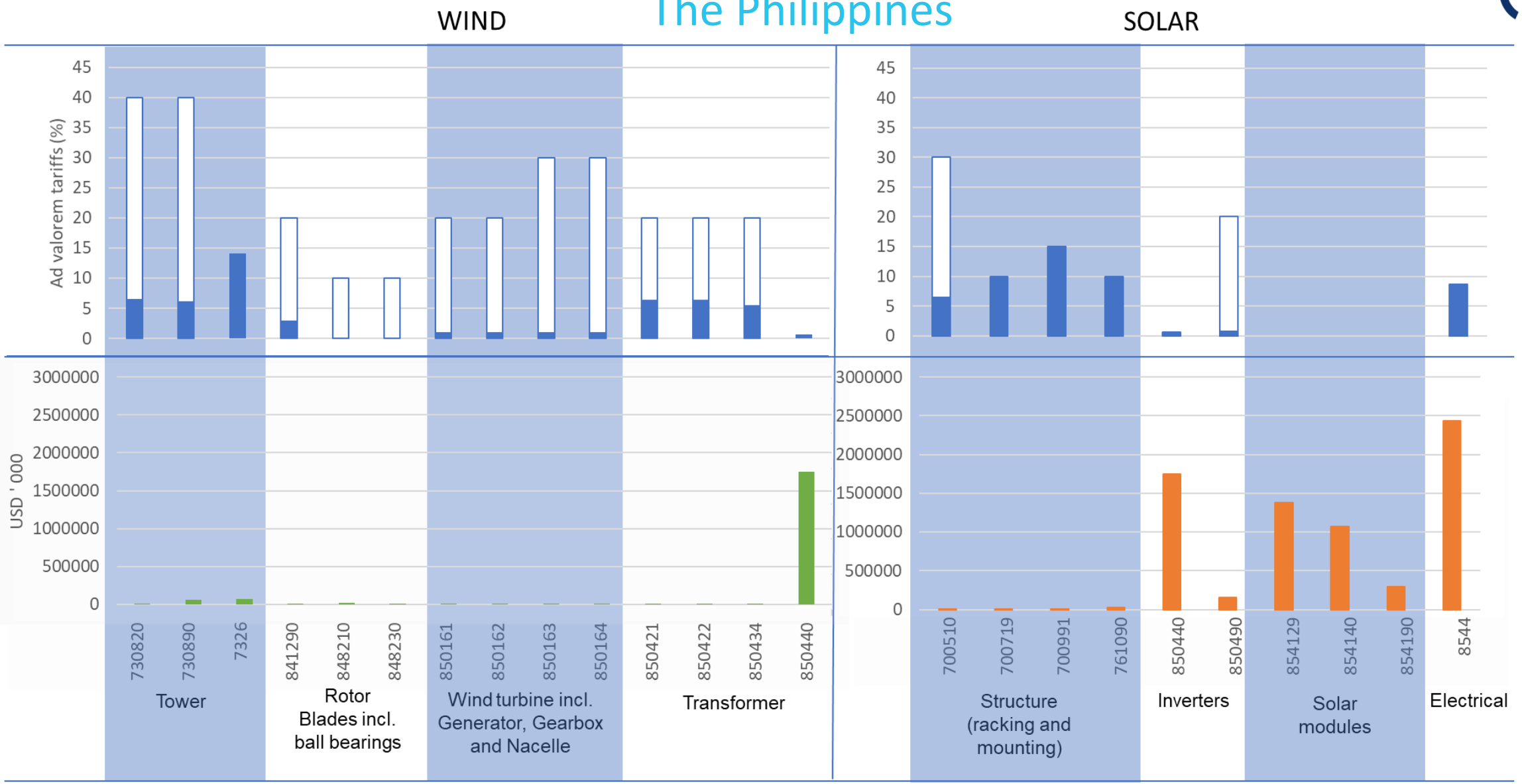
Tariffs and exports of wind and solar components in Cambodia

Cambodia



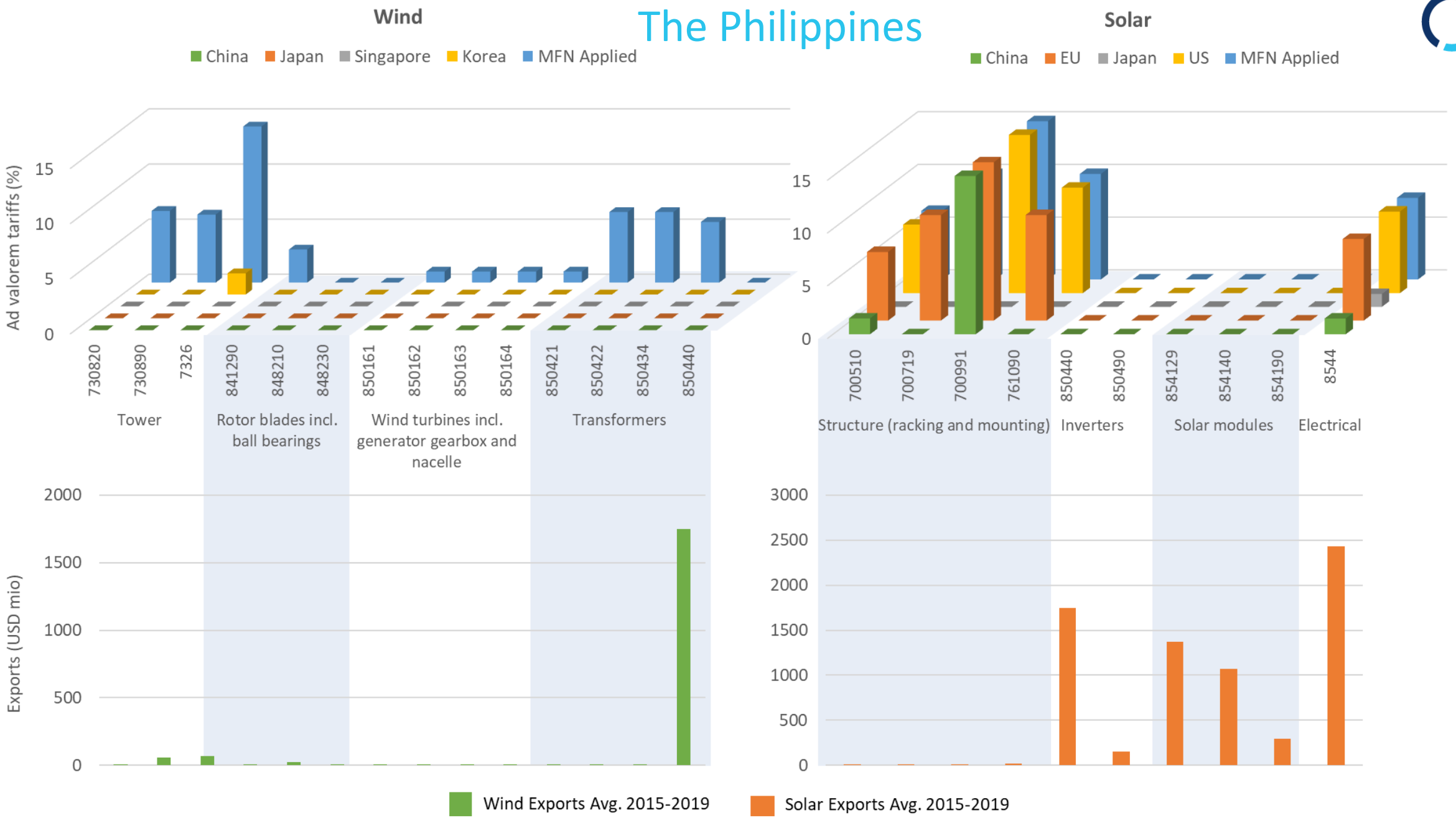
Tariffs and exports of wind and solar components in the Philippines

The Philippines



Tariffs and exports of wind and solar components in the Philippines

The Philippines



Policy options and considerations regarding tariffs on renewable energy