



## C&I Rooftop Solar Investment Guidelines for Viet Nam

### Webinar

Friday, 16 October 2020

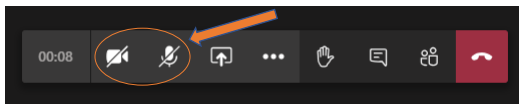
Within the framework of



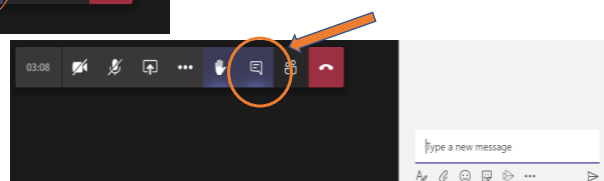
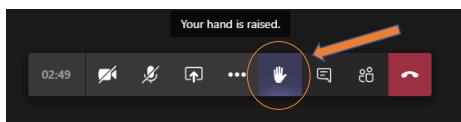
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## Welcome to the Webinar

Please keep your microphone muted and your video feed turned off:



You can ask questions using the chat box and/or raise hand function. We will unmute you so that you can ask questions:



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## Welcome to the Webinar

### Presentations of the Webinar:

- All presentations are available for download on the VEPG website: [www.vepg.vn](http://www.vepg.vn)
- (A Vietnamese translation will follow within a few days)



## Welcome to the Webinar – Our Speakers and Experts

**Rainer Brohm**, on behalf of GIZ Energy Support Programme



**Ross Macleod**,  
Senior Associate, Asia Counsel



**Mathias G. Kothe**,  
Managing Director, Syntegra Solar Intern.

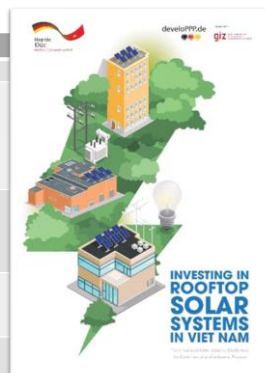


**Tran Viet Nguyen**,  
Dep. Director, EVN Business Department



## Welcome to the Webinar – Agenda

Timing	Agenda
14.00 – 14.05	Online Registration and Instructions for Webinar – MS Teams
14:05 – 14:25	<b>Mr. Rainer Brohm, GIZ Viet Nam</b> <ul style="list-style-type: none"> <li>Introduction</li> <li>Brief overview of the Rooftop Solar Market Viet Nam</li> <li>Presentation of the RTS Investment Guidelines for Viet Nam</li> </ul>
14:25 – 14:40	<b>Mr. Ross Macleod, Senior Associate Asia Counsel</b> <ul style="list-style-type: none"> <li>Legal framework for Rooftop Solar and feasible business models for RTS</li> <li>Introduction to contract templates for RTS business models</li> </ul>
14:40 – 14:50	<b>Mr. Mathias G. Kothe, Managing Director Syntegra Solar International</b> <ul style="list-style-type: none"> <li>Quality as a key success factor for RTS project implementation</li> </ul>
14:50 – 15:10	<b>Mr. Tran Viet Nguyen, Dep. Director Business Department, EVN</b> <ul style="list-style-type: none"> <li>Introduction to EVNSOLAR platform and further EVN support/services</li> </ul>
15:10 – 15:30	<b>Questions &amp; Answers, with sector experts and project partners</b> <ul style="list-style-type: none"> <li><b>Mr. Ross Macleod</b>, Asia Counsel (Co-Author of the RTS Guidelines)</li> <li><b>Mr. Mathias Kothe</b>, Syntegra Solar International (Project Partner GIZ develoPPP.de)</li> <li><b>Mr. Tran Viet Nguyen</b>, EVN Business Department</li> </ul>
15:30	<ul style="list-style-type: none"> <li>End of the Webinar - Video</li> </ul>



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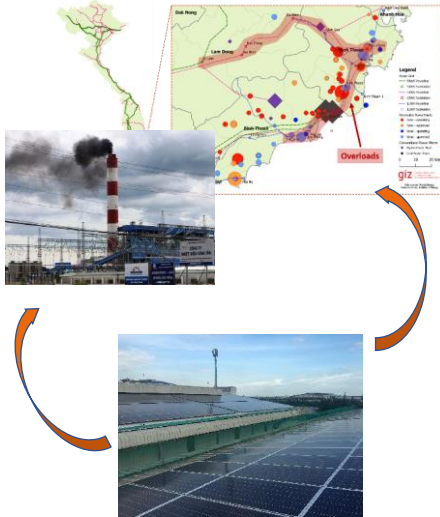
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## Introduction

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## Key Solution for Viet Nam



### Rooftop Solar for Viet Nam:

- Need for more **distributed renewable energy**: **domestic** energy source (energy security!), **reliable** (forecast), delivering **peak demand**, **CO<sub>2</sub>-free** (climate change!), **close to demand**.
- ⇒ **Government priority: Rooftop Solar!**
- New **Rooftop Solar Promotion Programme** issued (MOIT Decision 2023/QĐ-BCT, July 2019) with strong support from Germany and EU.
- **New Solar FIT** (PM Dec. 13/2020) **opening investor business models** for RTS (on-site PPA, leasing etc.).

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## Key Solution for Industry and Commerce



Source: DBW/Aschoff Solar



Source: Sao Mai Group

### Rooftop Solar for Industry

- Reducing **energy costs**
- Improving **energy security** and electricity **price predictability**
- **Greening the product** and the **value chain**
- Contributing to **corporate goals** (renewable energy share/CO<sub>2</sub> reduction)
- Benefiting from **first-mover advantage** in your industry
- Contributing to **Green Building Certificates**
- **But: Market needs to be developed and high quality established!**

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# GIZ Support Activities for Rooftop Solar in Viet Nam

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## Overview: EU/German Support for RTS Development

**Key focus:** Increase quality of equipment and of installations

- Support to MOIT for **developing the regulatory framework** for RTS (Solar FIT 2 etc.) and **grid connection standards**.
- Development of **technical standards and guidelines** for RTS equipment, installation and operation.
- Development of a “**Certified Solar Installer**” **curriculum** for Technical and Vocational Education and Training (TVET) colleges (in cooperation with GIZ TVET Programme).
- Development of **Viet Nam Solar Quality Passport** for PV systems.



Cat Tuong solar PV system (850 kWp)

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## Overview: EU/German Support for RTS Development

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**Annexes to PV Passport No. \_\_\_\_\_ ZVEH**

**PHOTOVOLTAIC SYSTEM**

Installed system capacity: \_\_\_\_\_ kWp

Alignment and roof pitch: \_\_\_\_\_

Photo / description of system: \_\_\_\_\_

Commissioning, metering system: \_\_\_\_\_

Feed-in management pursuant to EEO: \_\_\_\_\_

PV PASSPORT ISSUING BODY: \_\_\_\_\_

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## GIZ Project: DeveloPPP – GIZ/Cat Tuong/Syntegra Solar

### Objectives and Activities

- Development of **Investment Guidelines** for Rooftop Solar that will support and guide investors and project developers in the country.
- **Technical trainings** for installers and technical staff on high-quality solar installation.
- **Strategic cooperation** with vocational colleges in the region (Ninh Thuan and Long An) and close cooperation with GIZ TVET programme.
- **Information workshops** on Rooftop Solar project development and framework conditions (**Upcoming: mid-November 2020 in HCMC**)

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## Rooftop Solar Market Development in Viet Nam

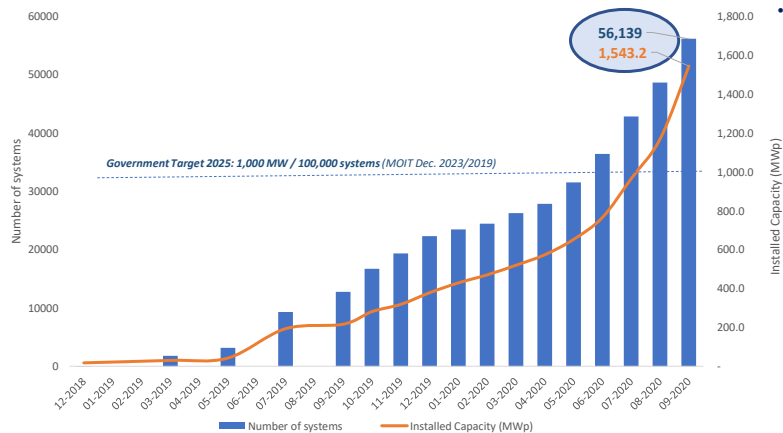
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### Rooftop Solar Market Viet Nam – Development 2019-2020

Development of the Rooftop Solar Systems and Installed Capacity in Viet Nam

**September 2020:**

- 1.543 MWp
- 56.139 systems



Source: VEPG Factsheet on Rooftop Solar Development September 2020, data: EVN

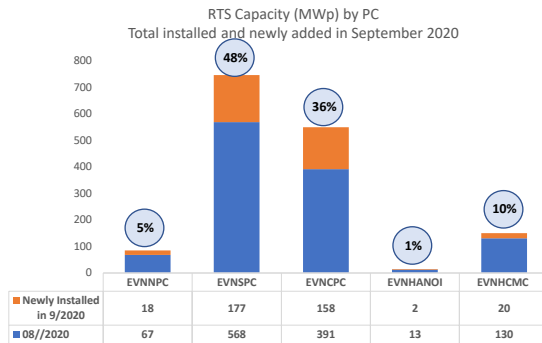
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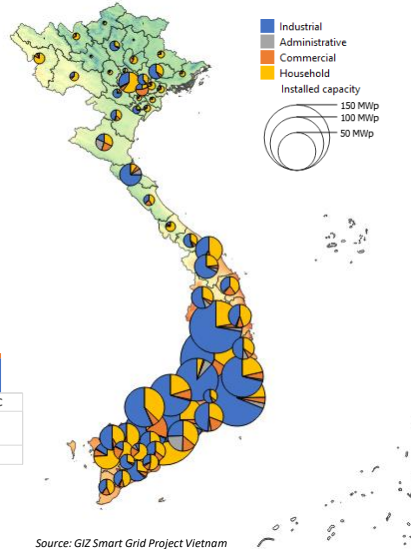
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## Rooftop Solar Market Viet Nam – Development 2019-2020

### Regional Distribution of RTS Capacity



Source: VEPG Factsheet on Rooftop Solar Development September 2020, data: EVN



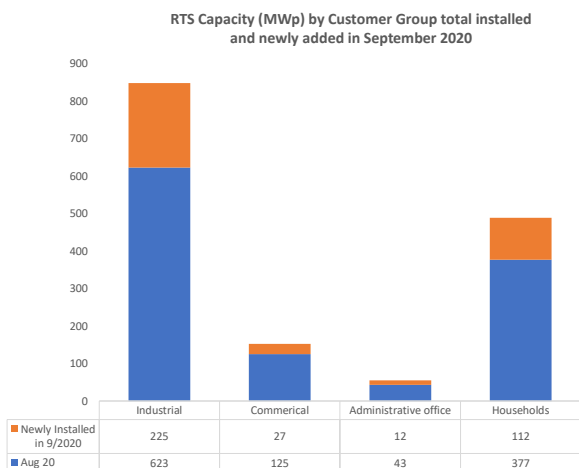
Source: GIZ Smart Grid Project Vietnam

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## Rooftop Solar Market Viet Nam – Development 2019-2020



Source: VEPG Factsheet on Rooftop Solar Development September 2020, data: EVN



Source: Cat Tuong Corp./Tona Syntegra Solar

### Total Installed Capacity by Investor:

- Industry: 847 MW (55%)
- Household: 488 MW (32%)
- Commercial: 152 MW (10%)
- Administrative: 55 MW (3%)

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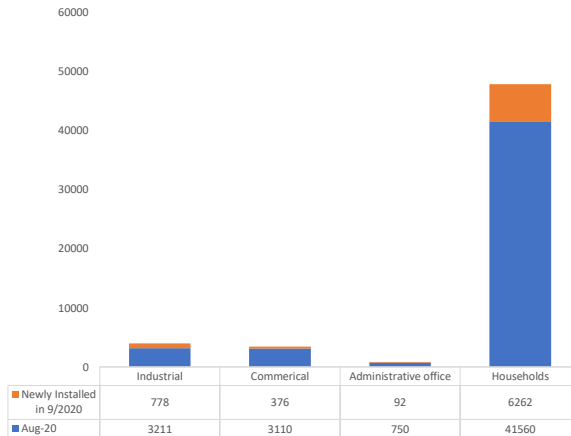
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## Rooftop Solar Market Viet Nam – Development 2019-2020

Number of RTS Systems by Customer Group total installed and newly added in September 2020



Source: VEPG Factsheet on Rooftop Solar Development September 2020, data: EVN



Source: EVN/Vietnam News

### Total No. of Installed Systems by Investor:

- Household: 47,822 (85%)
- Industry: 3,989 (7%)
- Commercial: 3,486 (6%)
- Administrative: 842 (2%)

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## The Rooftop Solar Investment Guidelines – Structure and Content

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## RTS Investment Guidelines – Key Content

### Guidance for Investors and Solar Developers:

1. **Information about the RTS market** development in Viet Nam, as well as **key policy and legal processes and documents**.
2. **Guidance on how to choose** the most appropriate **business model**.
3. **A step-by-step breakdown** of the most critical steps of **RTS Project Development Process**, plus **tools and checklists** for easy implementation.
4. **Practical tips** based on the **experience of companies** in Viet Nam that have developed RTS projects in the past.



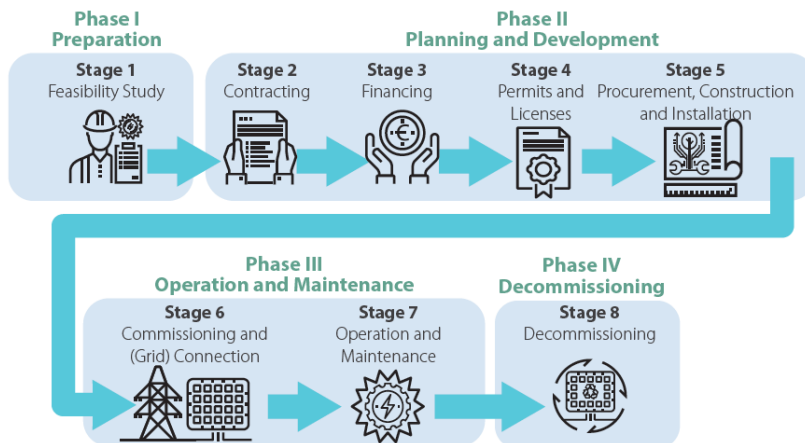
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## RTS Investment Guidelines – Structure and Content (I)

### Breakdown of Project Development Cycle



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## RTS Investment Guidelines – Structure and Content (II)

### Phase I - Preparation



- Relevant feasibility criteria
- Recommended technical quality standards
- Checklists (e.g. for site evaluation, selection of suitable business model etc.)

Criterion	Assessment
Modules	✓ IEC 61215: Crystalline silicon (c-Si) terrestrial PV modules - design qualification and type approval
	✓ IEC 61646: Thin-film terrestrial PV modules - Design qualification and type approval
	✓ IEC 61730: PV module safety qualification
	✓ IEC 60364-4-41: Protection against electric shock
Mounting system	✓ IEC 61701: Resistance to salt mist and corrosion (required for module being installed near coast or maritime applications)
	✓ IEC 61853-1: PV module performance testing and energy rating
	✓ Mounting systems should be designed specifically for the site with structural design calculations providing verification of the site-specific design and structural warranty document.
Inverter	✓ EN 61000-6: Electromagnetic compatibility (EMC) generic standards
	✓ EN 50178-1007: Electronic equipment for use in power installations
	✓ IEC 62100: Safety of power converters for use in photovoltaic power systems
	✓ IEC 62116: Islanding prevention measures for utility interconnected photovoltaic inverters



**Practical Insight**  
Is the FIT fixed?

In point 2 of Article 8 of Decision 13, the FIT for the current year (in VND) will be calculated based on the exchange rate from the central bank on the last day of the previous year. EVN has issued a [Guidance Letter No. 3725/EVN-KD](#) dated 1 June 2020. Effectively, the FIT is 1,913 VND/kWh in 2019 and 1,940 VND/kWh in 2020.



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## RTS Investment Guidelines – Structure and Content (III)

### Phase II – Planning and Development



Contracting



Financing

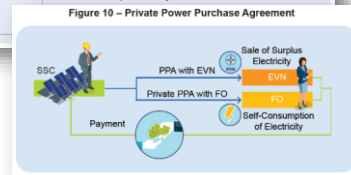


Permits and Licences



Procurement, Construction, Installation and Grid-Connection

Criterion	Assessment
Technical Design	✓ Check that all system elements are included
	✓ Check that all necessary infrastructure works are included
	✓ Check that all relevant quality standards have been addressed
Track record	✓ Number of years of experience and number of projects: the more similar projects an EPC contractor has carried out in the past, the better the chances that they can deliver well on the project.
	✓ Check project references provided (call respective facility owners or visit the sites), whenever possible
	✓ Financial stability/ financial guarantee



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## RTS Investment Guidelines – Structure and Content (III)

Free-of-charge legal contract templates!

### Phase II – Planning and Development



Contracting



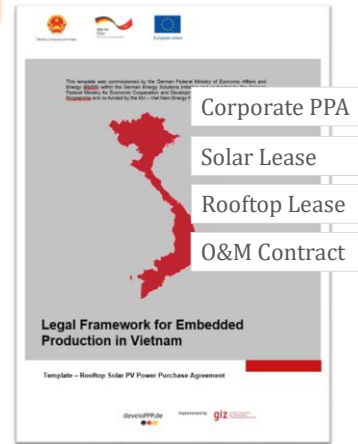
Financing



Permits and Licences



Procurement, Construction, Installation and Grid-Connection



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## RTS Investment Guidelines – Structure and Content (IV)

### Phase III – Operation and Maintenance



Commissioning and Grid Connection



Operation & Maintenance

Figure 14 – Official Request Letter for Electricity Sale from RTS

**SOCIALIST REPUBLIC OF VIETNAM**  
Independence – Freedom – Happiness

**OFFICIAL REQUEST LETTER FOR ELECTRICITY SALE**  
(From the rooftop solar PV project)

Attention to: .....

Name of the organizations/individuals: .....

Tax number: ..... At the bank: .....

Account number: ..... Represented by Mr. (Ms.): ..... Tele: .....

ID card number: ..... Issued by: ..... dd/mm/yy: ..... of .....

Based on the Authorization Letter: ..... dd/mm/yy: ..... of .....

Email/contact telephone: .....

Register to sell electricity from the rooftop solar PV project:

1. The project information:

- Project name: .....
- Project capacity: ..... kWp
- Solar panel type: ..... kW made by the manufacturer: .....
- Inverter type: ..... kW set made by the manufacturer: .....
- Voltage connection level: .....

2. Information regarding PPA from the grid (if any):

- Electricity customer code: .....
- Current location of electricity use: ..... dd/mm/yy: ..... of .....

(Full name, signed and stamped)

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## RTS Investment Guidelines – Structure and Content (IV)

### Phase III – Operation and Maintenance



#### Commissioning and Grid Connection



#### Operation & Maintenance

**Checklist 13 – Training Topics for RTS System O&M**

**RTS O&M Topics**

- ✓ Fundamentals of Solar PV Systems
- ✓ Overview of the specific RTS systems (i.e. component, rated capacity, and other parameters, review of single line diagram, etc.)
- ✓ Safety considerations when working with a PV system (i.e. risk associated with PV system operation, etc.)
- ✓ Routine inspections / performance monitoring (i.e. understanding of system parameters, etc.)
- ✓ Use of measurement devices (e.g. clamp meter, etc.) or monitoring systems
- ✓ Preliminary troubleshooting
- ✓ Cleaning of system components
- ✓ Warranty details (conditions, duration period, point of contact)

## RTS Investment Guidelines – Structure and Content (V)

### Phase IV – Decommissioning



#### Waste Management

#### Recycling

**THE GOVERNMENT**      **SOCIALIST REPUBLIC OF VIETNAM**  
**Independence - Freedom - Happiness**

No: 38/2015/NĐ-CP      Hanoi, April 24, 2015

**DECREE**  
**ON MANAGEMENT OF WASTE AND DISCARDED MATERIALS**

Pursuant to the Law on Government organization dated December 25, 2001;  
Pursuant to the Law on Environment protection dated June 28, 2014;  
At the request of the Minister of Natural Resources and Environment

The government promulgates the Decree on management of waste and discarded materials.

**Chapter I**  
**GENERAL PROVISIONS**

**Article 1. Scope of regulation**

1. This Decree stipulates for "Waste management including hazardous wastes, daily-life solid waste, ordinary industrial solid waste, liquid waste products, wastewater, industrial emissions and other particulate wastes; environmental protection in discarded material imports.

2. This Decree shall not stipulate for management of radioactive waste, noise, vibration, light, radiation.

3. The collection and transportation of waste from free trade zones, processing and exporting zones, exporting and processing enterprises to inland shall be carried out uniformly as for wastes outside free trade zone, processing and exporting zones, exporting and processing under the provisions of this Decree, the provisions of Chapter VIII of this Decree shall not be applied to discarded materials from free trade zone, processing and exporting zones and exporting and processing enterprises.

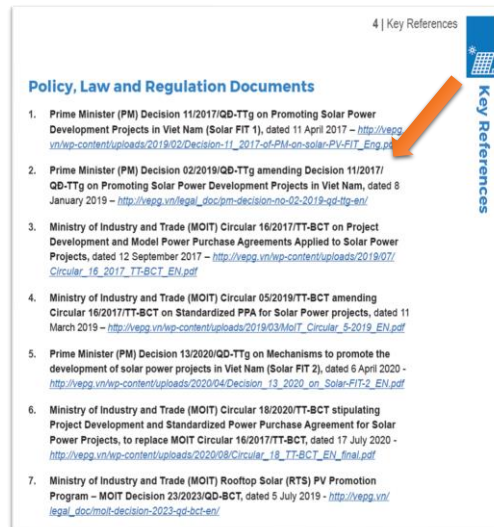
**Article 2. Regulated entities**

This Decree shall be applied to domestic agencies, organizations, households and individuals, foreign organizations and individuals (hereinafter referred to as organizations and individuals) with activities related to waste and imported discarded materials on the Socialist Republic of Vietnam's territory, including the mainland and islands, territorial waters and airspace.

## RTS Investment Guidelines – Structure and Content (VI)

### References & Hyperlinks

- References and hyperlinks to all relevant documents



## RTS Investment Guidelines – Structure and Content (VI)

### References & Hyperlinks

- References and hyperlinks to all relevant documents

**Import Duty Exemptions:** RTS projects are exempt from import duties on fixed assets in accordance with regulations on export and import duties (Article 14 of [Decree No. 134/2016/ND-CP](http://vepg.vn/wp-content/uploads/2020/07/134_2016_ND-CP_EN.doc.pdf)). Duty exemptions apply for all renewable energy systems and [http://vepg.vn/wp-content/uploads/2020/07/134\\_2016\\_ND-CP\\_EN.doc.pdf](http://vepg.vn/wp-content/uploads/2020/07/134_2016_ND-CP_EN.doc.pdf) are purchased to be used by the buyer themselves. This means, these would not apply for systems used under a leasing agreement. These apply as follows:

## RTS Investment Guidelines – Download



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**Thank you!**

Rainer Brohm  
on behalf of GIZ Energy Support Programme

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