

# PV in Japan

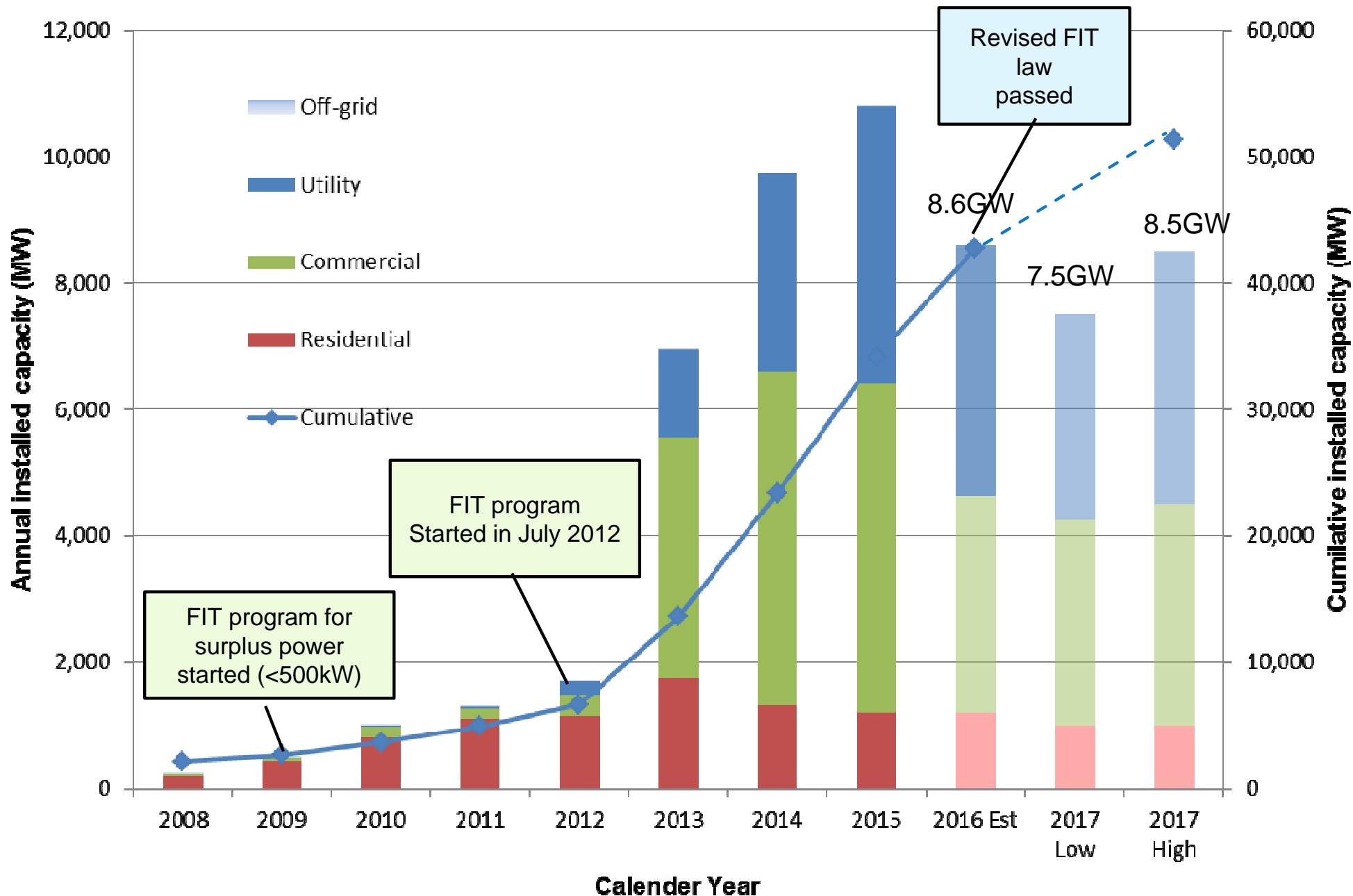


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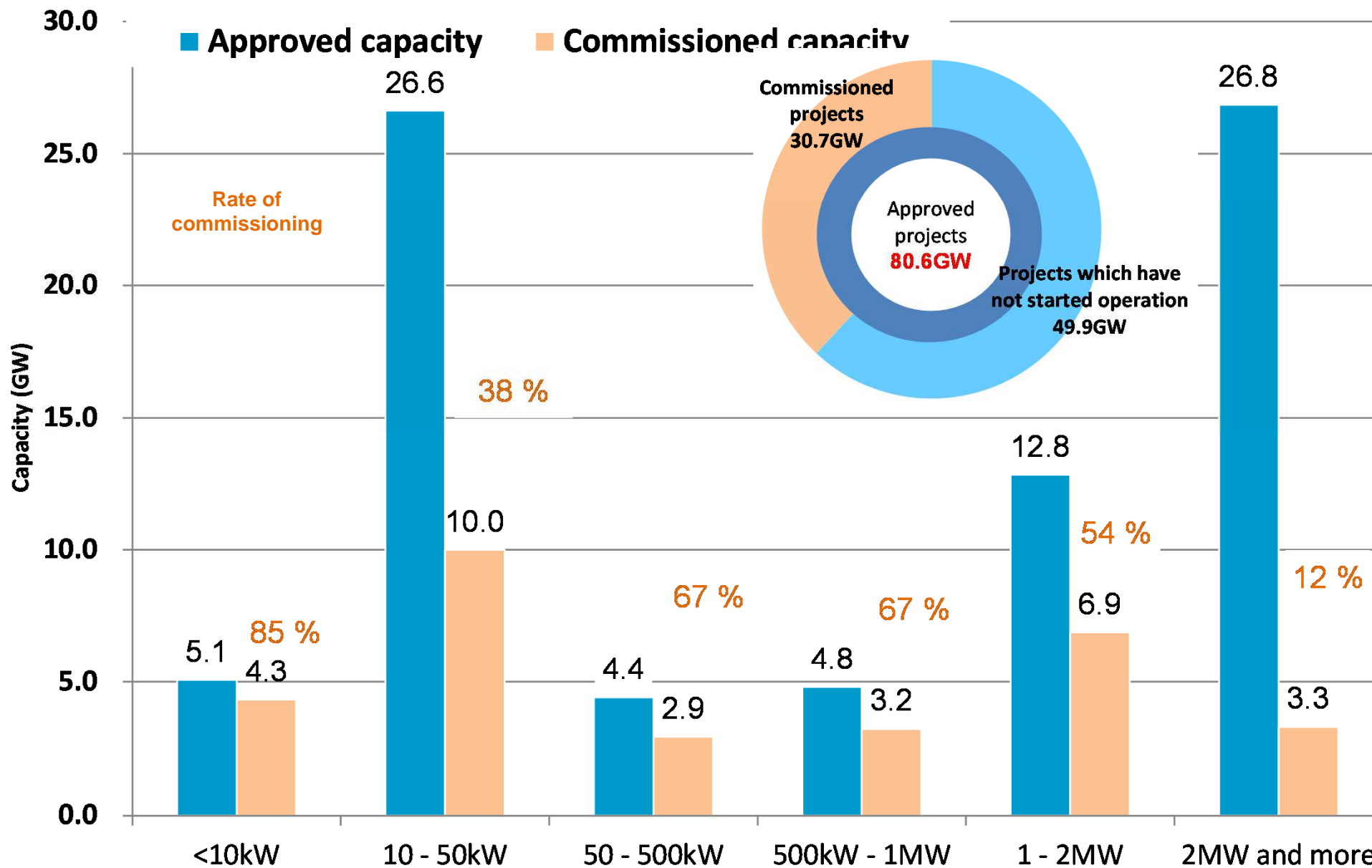
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# 2016 and 2017 Market (DC)

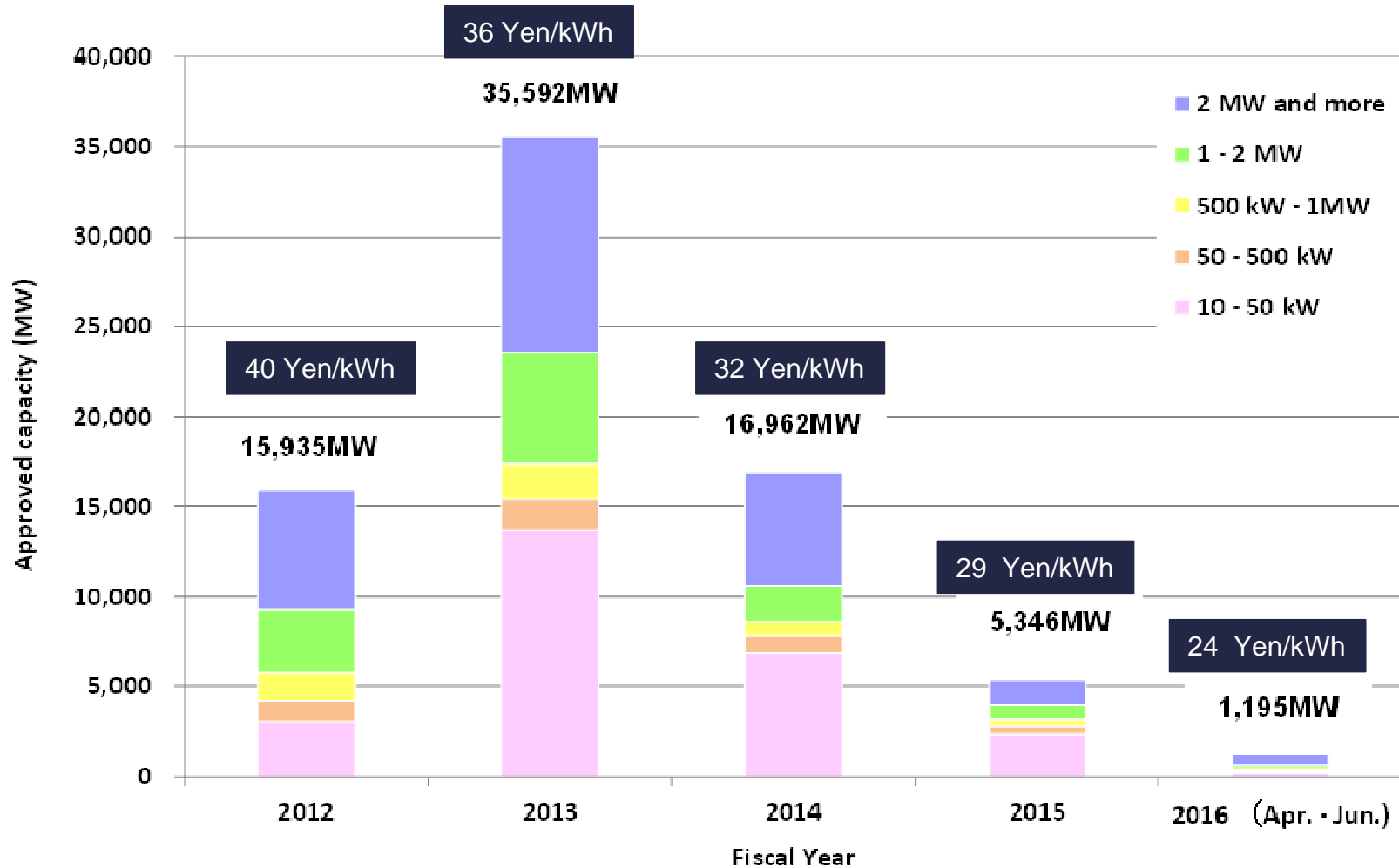


# PV approved capacity and commissioned capacity under the FIT program as of the end of September 2016 (AC-based, by capacity range)



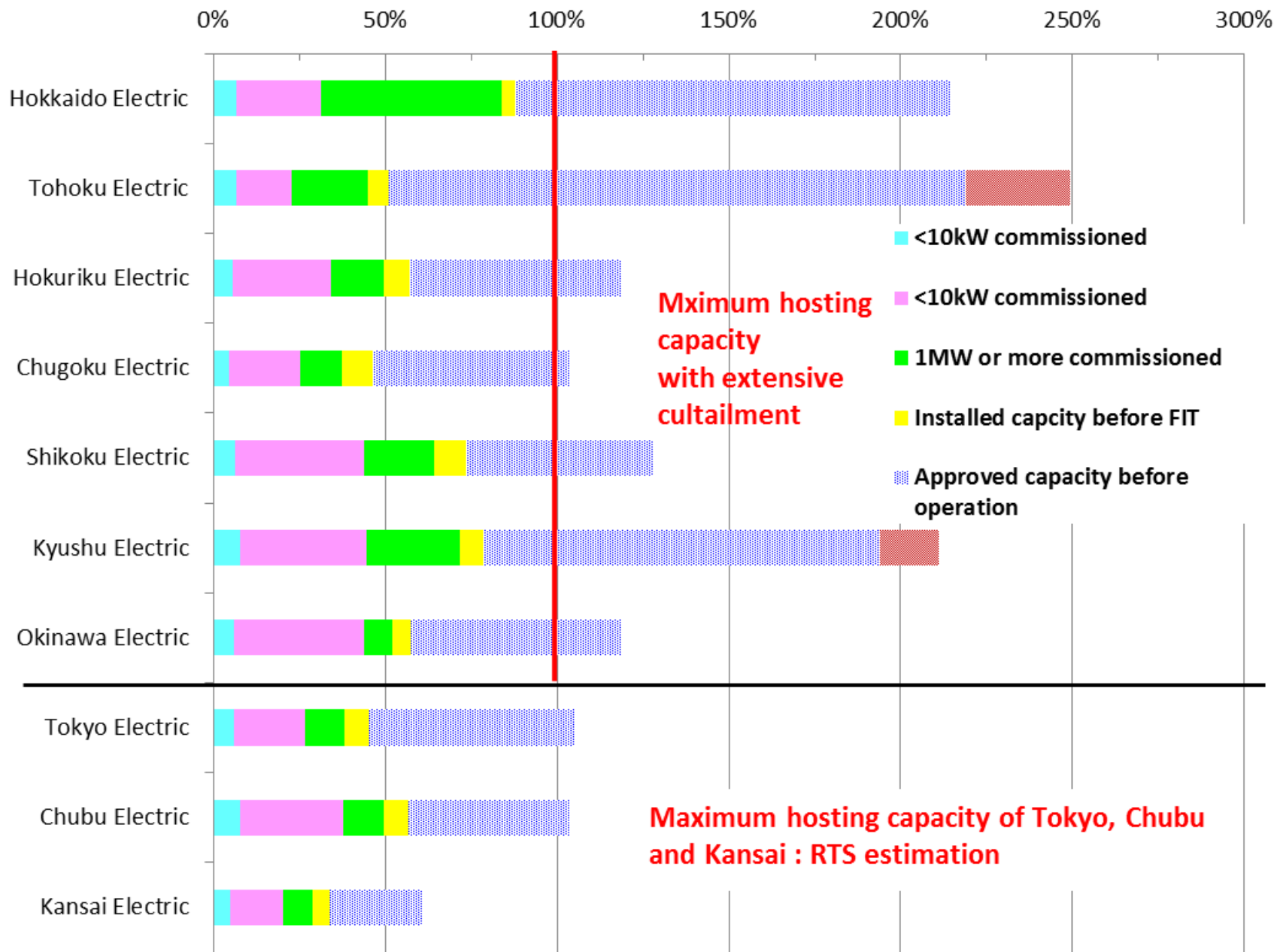
Source: Ministry of Economy, Trade and Industry (METI), compiled by ©RTS Corporation

# Approved projects (>10kW) by fiscal year



- ✓ PV approved capacity of the  $\geq 10$  kW capacity range as of the end of June 2016 was 75,030 MW, of which 35,592 MW was approved in FY 2013 (FIT rate of 36 Yen/kWh to approach half of the total).
- ✓ The sum of the approved capacity of FY 2013 and FY 2012 (40 Yen/kWh (34 cents/kWh)) exceeds 50 GW.

# Maximum hosting capacity by Utility companies (as of September 2016)



# Revised Renewable Energy Law (FIT Law) : Passed on 25<sup>th</sup> May 2016 in the diet

Enforced from April 1 2017

New approval scheme

New approval scheme for business plan

Framework to comply related laws and regulations

Addressing safety of PV systems → O&M

Addressing delayed/ unrealistic projects

Setting rules for FIT level

Middle term price target

FIT level for multiple years

Tender program

Off-takers of RE power

Distributor → Transmission & distribution operator

Transparency for grid connection

Disclosure of connection capacity and price of GC work

Guideline for grid connection work

More transparent rules for grid connection

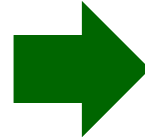
Disclosure of supply and demand information

Exemption of surcharge

Exemption rate based on energy efficiency efforts

# Points of new approval procedure

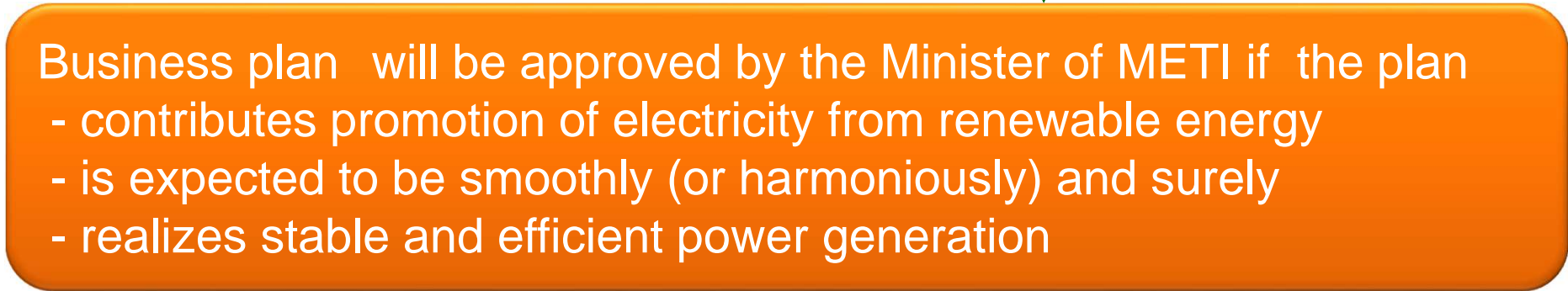
Before (current procedure)



From FY 2017 (New procedure)



Requirements under new procedure



In case of violation of compliance rules



Violation of compliance rules in the government and ministry ordinances and guidelines may results revocation of approval



# Major criteria for approval under new FIT program

Criteria for approval under the former FIT program (**continuously applied**)

## Power generation facilities shall comply with the criteria

A system for inspection and maintenance is required in which fixing within 3 months is available

Location and specifications of facilities shall be decided

The structure to accurately measure the amount of electricity is established

The power generation facilities shall not be the ones which are approved under RPS

For on-site electricity demand, generated electricity shall be consumed

## Method to generate electricity shall comply with the criteria

Expenditure shall be recorded

Procurement of biomass for other projects shall not be significantly affected (in case of biomass)

Criteria for approval added under the revised FIT program (**addition**)

## Description of business shall comply with the criteria

It is required to maintain electricity output by conducting appropriate inspection and maintenance

Expenditure and electricity output, etc. shall be reported periodically

Appropriate responses shall be made for maintaining grid stability, etc.

Appropriately measures shall be taken at the time of renewal or disposal of facilities

## Ensure proper power generation business shall be conducted smoothly and certainly

Grid connection contract shall be concluded

Laws and regulations related to land use shall be conformed

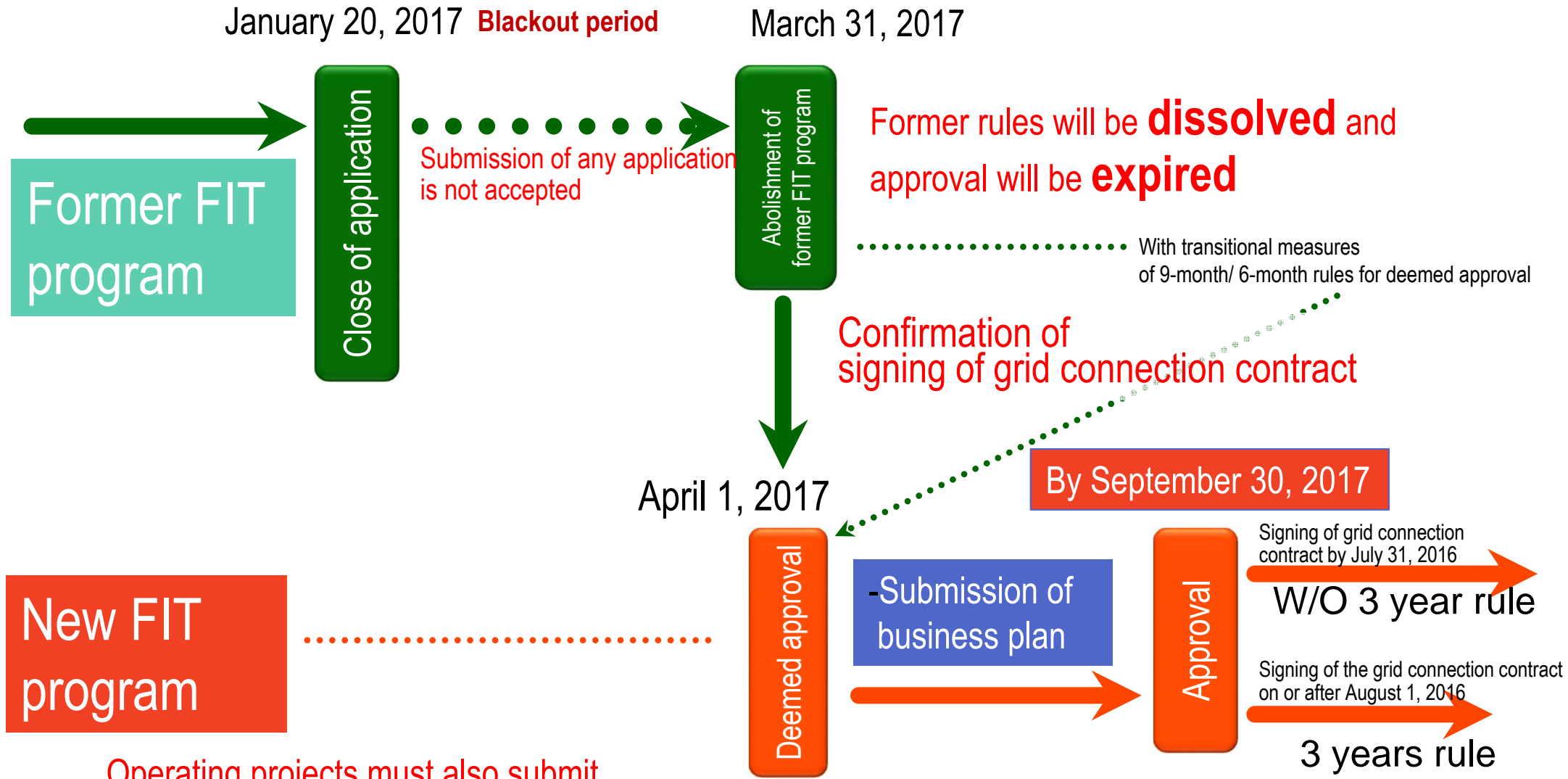
Operation shall start within the adequate period (FITs will be reduced in the case of delay of commissioning for 3 years after acquisition of approval)

## Facilities shall comply with the criteria

Laws and regulations related to the safety of power generation facilities shall be conformed (compliance with related laws and regulations)

A sign in which business description, etc. are shown shall be posted on site (in case of  $\geq 20$  kW projects, name of operator, responsible person, contact information, etc.)

# Application for approval under the former FIT program was closed on January 20, 2017



- \* Applications for changes, etc. under the new FIT program are accepted from April 1, 2017.
- \* Projects applied with transitional measures (6-months rule and 9-months rule) are not allowed to notify changes, etc. without acquisition of deemed approval
- \* As for projects to which transitional measures (9-month rule) are applied, if the grid connection contract is signed on or after April 1, 2017 the FIT for FY 2017 will be applied

# Items to comply to rules under revised Renewable Energy law

Item		10kW or more	<10kW
Business plan	Implementing power generation business following “Guideline for developing business plan”	X	X
Maintenance and inspection	Appropriate maintenance & operation	X	X
Installation of fence	Preventing trespassing (no need for rooftop application)	X	X
Installation of sign board	Sign board should be put in the visible position (20kW or more)	X	—
Obligation to consent for output curtailment	Appropriate co-operation with output curtailment	X	X
Obligation of annual reporting	Information regarding business should be submit to the minister of METI	X	X
Proper disposal	Proposal of facility should follow related laws	X	X
3 years rule	Commission within 3 years after signing grid connection (payment term reduced by monthly in case of delay)	X	—
Other related laws	Compliance to other related laws including ordinance	X	X

# FIT after FY 2017 and calculation basis

Category	< 10 kW (tax included for FIT)								10 kW or more (tax excluded for FIT)	
	FY 2016		FY 2017		FY 2018 (proposed target)		FY 2019 (proposed target)		FY 2016	FY 2017
Obligation to install a device corresponding to output curtailment	X	O	X	O	X	O	X	O	All systems	All systems
Feed-in tariff (FIT) (Yen/kWh)	31	33	28	30	26	28			24	21
Double power generation (Yen/kWh)	25	27	25	27	25	27	24	26	-	-
System price	353,000 Yen/kW		336,000 Yen/kW		322,000 Yen/kW		308,000 Yen/kW		251,000 Yen/kW	244,000 Yen/kW
Device corresponding to output curtailment (Yen/kW)	-	10,000	-	10,000	-	10,000	-	10,000	-	-
Land development	-	-	-	-	-	-	-	-	4,000 Yen/kW	4,000 Yen/kW
Connecting fee	-	-	-	-	-	-	-	-	13,500 Yen/kW	13,500 Yen/kW
Operation & maintenance (O&M) cost (Yen/kW/Year)	3,200		3,000		3,000		3,000		6,000	5,000
Capacity factor	13.7 %		13.7 %		13.7 %		13.7 %		14 %	15.1 %
Share of surplus electricity selling	70 %		70 %		70 %		70 %		-	-
Expected FIT for 10th to 20th year since start of purchase	11 Yen/kWh		11 Yen/kWh		11 Yen/kWh		11 Yen/kWh		-	-
IRR (before tax)	3.2 %		3.2 %		3.2 %		3.2 %		5 %	5 %
Purchase period	10 Years		10 Years		10 Years		10 Years		20 Years	20 Years

\* ≥ 2 MW range is subject to the tender scheme

# Schedule

- By taking account of the preparation period for utility-scale PV projects, **prospects for the timing of tender and tender details over the next two years** will be presented
- Since it is necessary to develop the tender system, etc. during the first year of implementation (FY 2017), **one round is scheduled around October 2017**
- On or after FY 2018, **two rounds will be implemented annually in principle** (3 rounds in total within 2 years)

<b>FY 2016</b>	April 2016		<b>FY 2017</b>	April 2017	Formulation of operating rules of the designated bidding agency	<b>FY 2018</b>	April 2018	
	May			May	Publication of the application guidebook for tender (early May)		May	
	June			June			June	
	July			July			July	<b>Start of offering the 2<sup>nd</sup> round of tender (P)</b>
	August			August			August	<b>Deadline for offering the 2<sup>nd</sup> round of tender (P)</b>
	September			September	<b>Start of offering the 1<sup>st</sup> round of tender (early Sep.)</b>		September	
	October			October	<b>Deadline for offering the 1<sup>st</sup> round of tender (early Oct.)</b>		October	
	November	FY 2017 Purchase Price Calculation Committee meetings		November			November	<b>Start of offering the 3<sup>rd</sup> round of tender (P)</b>
	December			December	FY 2018 Purchase Price Calculation Committee meeting (?)		December	<b>Deadline for offering the 3<sup>rd</sup> round of tender (P)</b>
	January 2017			January 2018	Revision of the guidance for implementing tender (P)		January 2019	
	February	Publication of the guidance for implementing tenders (early Feb.) Start of public offering of the bidding agency (early Feb.)		February			February	
	March	Designation of bidding agency (mid Mar.) Designation of the targeted power source of the tender (mid-late Mar.)		March	Revision of the application guidebook for tender (P)		March	

# Summary of tender scheme

- Tender for the **right to apply for FIT approval**
- Tender for the Feed-in tariffs (FIT) and the system capacity (the unit of tender price is **Yen/kWh**: submission is accepted with the unit of 0.01 Yen at minimum, the unit of system capacity is **MW<sub>AC</sub>**: AC capacity)
- The ceiling bidding price is limited to the FIT for 10 kW - < 2 MW capacity range (the ceiling bidding price for FY 2017 is **21 Yen/kWh**)
- **A uniform tender** throughout Japan (**not by region**)
- The guidance for implementing tenders will be published in February 2017
- **≥ 2 MW extra high voltage projects** are subject to the tender scheme on or after January 21, 2017, normal application for approval of extra high voltage projects are not accepted (only tenders)
- Methodology to decide FITs: **Pay as Bid** (bidders are paid the prices as they have bid)
- After winning the bid, **application for FIT approval** shall be submitted **within 1 month** and approval shall be acquired within 3 months

## Key points of eligibility for participating in the tender

- **The grid connection capacity is secured** (signing of grid connection contract is not essentially required, but application for approval is not accepted if contract is not concluded immediately after winning the tender)
- **The criteria for approval are met**: see the next page (signing of a contract for construction cost is not required at the time of tender)
- Explanation of the project plan, etc. to the relevant municipality is necessary (**briefing to local residents is required**)
- **Compliance** with permission and authorization, etc. under **other laws and regulations**
- The first guarantee deposit (**500 Yen/kW**) + handling charge for participating in the tender and second guarantee deposit (**5,000 Yen/kW**) when winning the tender are required to be paid (they will be refunded in case the development of project runs smoothly)

# Summary

- 2016 estimated installed capacity:
  - 8.6 GW<sub>DC</sub> → Official figure will be announced in NSR
- 2017 installed capacity
  - RTS's estimation 7.5 to 8.5GW
  - Potentially to be 7GW
- Revision of FIT law
  - New approval scheme can clear pipelines
  - First tender program will be scheduled in Sept. 2017
- Cost reduction is expected with new FITs
- Issues
  - Grid integration
  - Increase the national target (FY 2030: 64GW)



***Thank you for your kind  
attention !***

**感谢您的关注**

**끝까지 경청해 주셔서 감사합니다**

**ご清聴ありがとうございました**

## Acknowledgement



New Energy and Industrial Technology  
Development Organization

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