



# Legislative support of RES in the Russian Federation

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## The plan of capacity commissioning ("quotas" for tender for LTCA – long-term capacity agreement)

- To get LTCA the tender is held every year
- Each tender is held "for 4 years ahead"
- Power is not contested in the tender, go to the next contest

Period	MW
2015	51
2016	50
2017	200
2018	400
2019	500
2020	500
2021	500
2022	500
2023	500
2024	399
<b>Total</b>	<b>3 600</b>

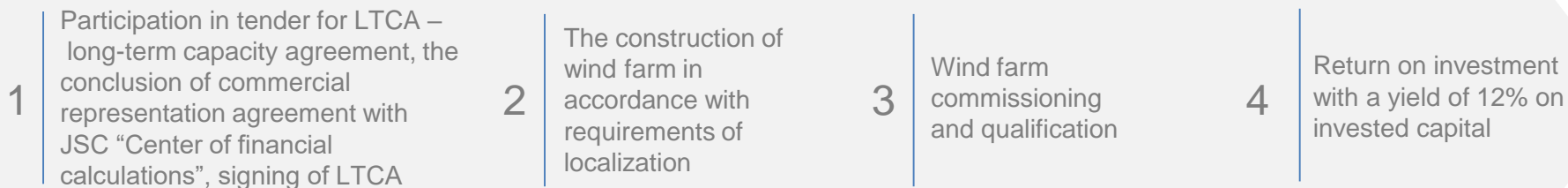
## Legislation principles:

- 1 Defined plan for capacity by 2024 and degree of localization of equipment
- 2 Defined the procedure of stimulation of development of renewable energy projects through a Long Term Capacity Agreement, LTCA
- 3 Defined the procedure of return of investments and the profitability of wind farm investment projects

## Approved localization plan

RES type / year	2016	2017	2018	2019 - 2024
Wind farm	25%	40%	55%	65%

# The order of development of renewable energy projects



As support for the development of renewable energy projects – tender for conclusion of long term capacity agreement. Participants of the tender should perform its obligations under the Wind farm commissioning with the specified characteristics and within the set period.

LTCA is concluded for **15 years** and only for the projects defined by the tender.

The tender criterion is the price of CAPEX.

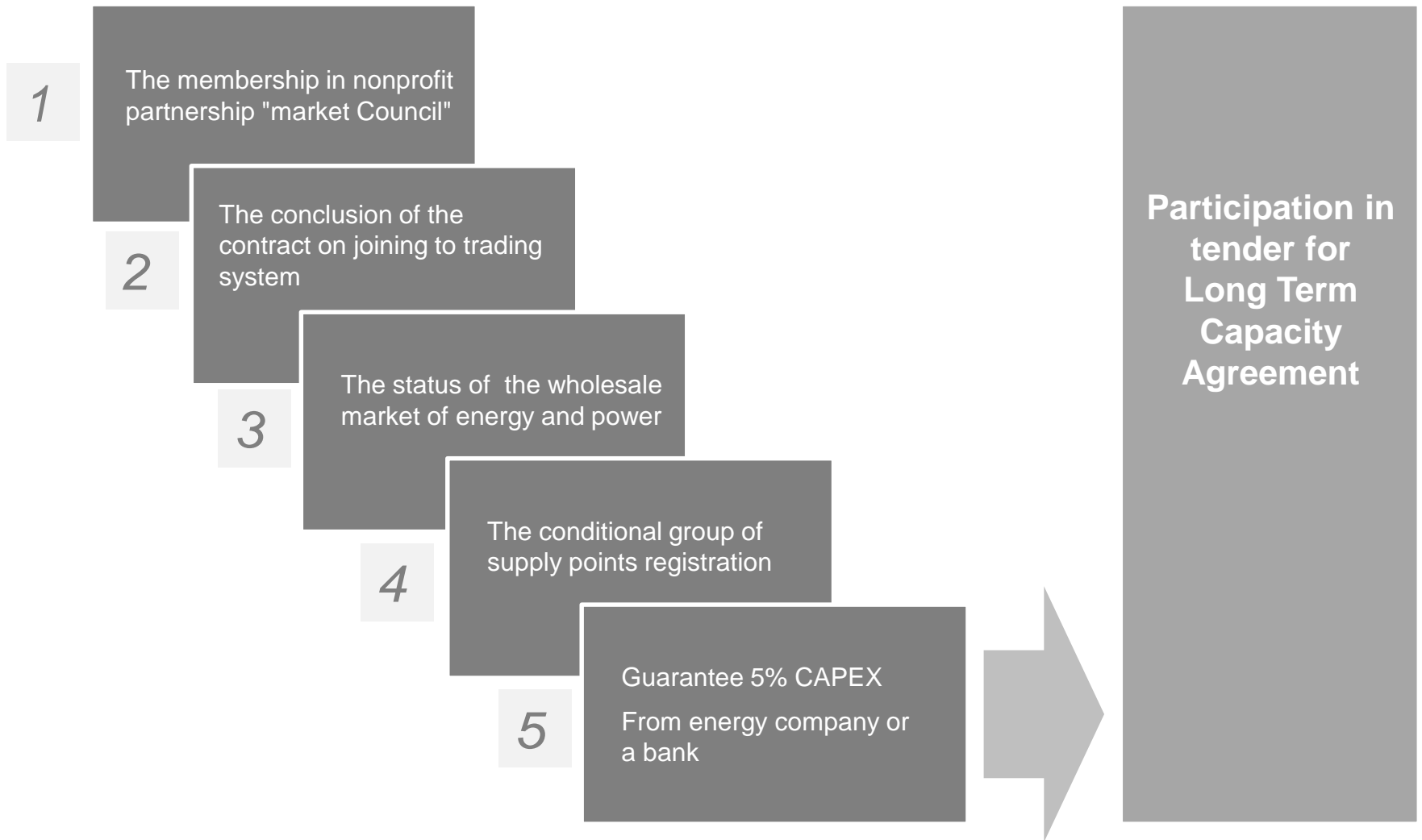
## Limit values of CAPEX established by the legislation of Russian Federation:

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
CAPEX, RUR / kW	110 000	109 890	109 780	109 670	109 561	109 451	109 342	109 232	109 123	109 014

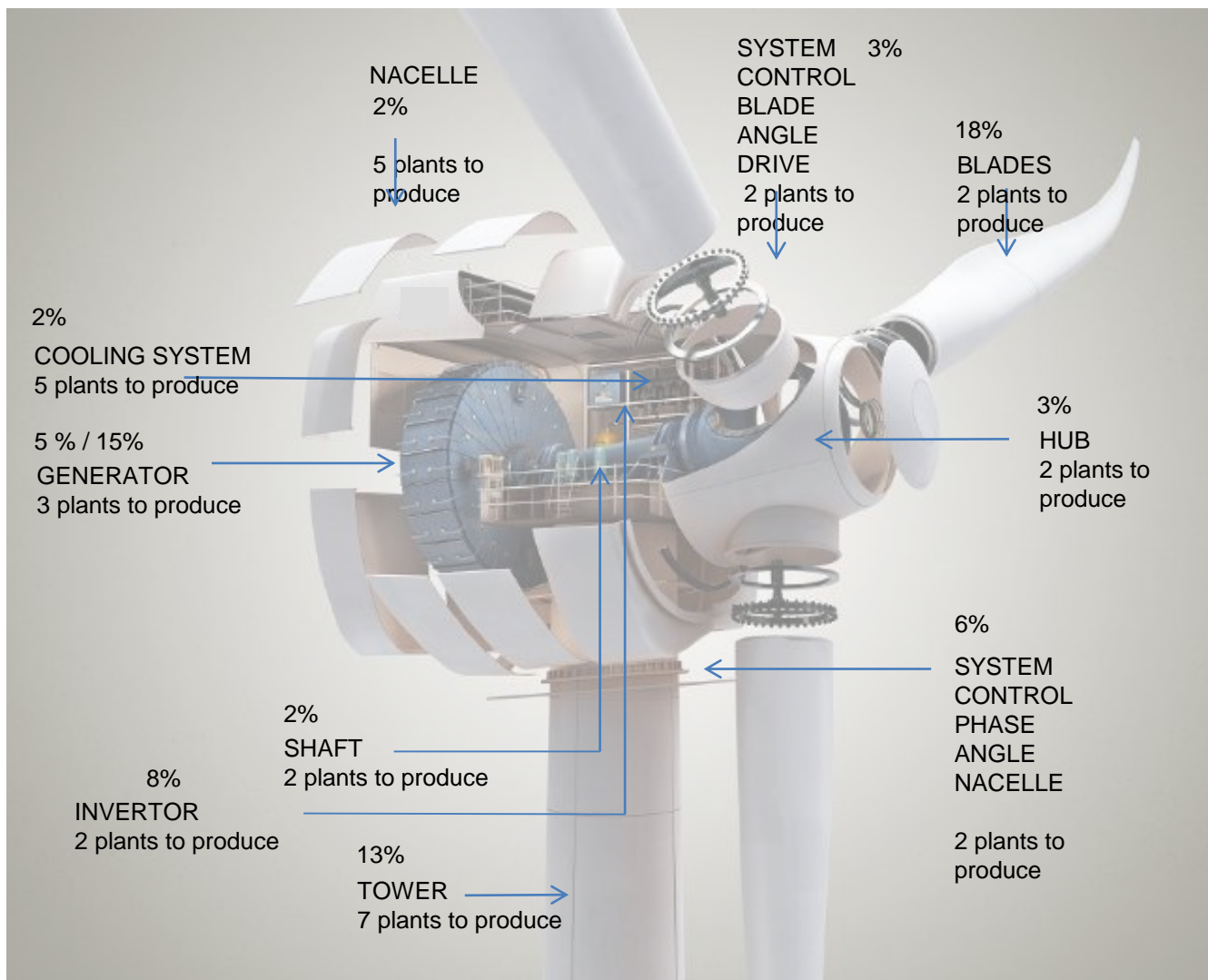
PLUS corrections corresponding “currency basket”, for instance Max CAPEX in 2015 was 142 000 plus VAT, in 2015 – 152 000 plus VAT

The participants declared a minimum price CAPEX within the planned capacity commissioning volumes, become the winners and receive the right to get LTCA.

# The order of the admission to participation in tender for Long Term Capacity Agreement



# Requirements of localization and existed manufacturers



During the construction of wind farms required equipment localization. From 2016-25%; 2017- 40%; 2018 - 55%; 2019 and further 65 % of all works, services and equipment components must be made on the territory of the Russian Federation. In the case of non-fulfillment of requirements to the price of the PSA will be applied to the decreasing coefficient of 0.45.

Manufacturers for each component existed in Russian Industry

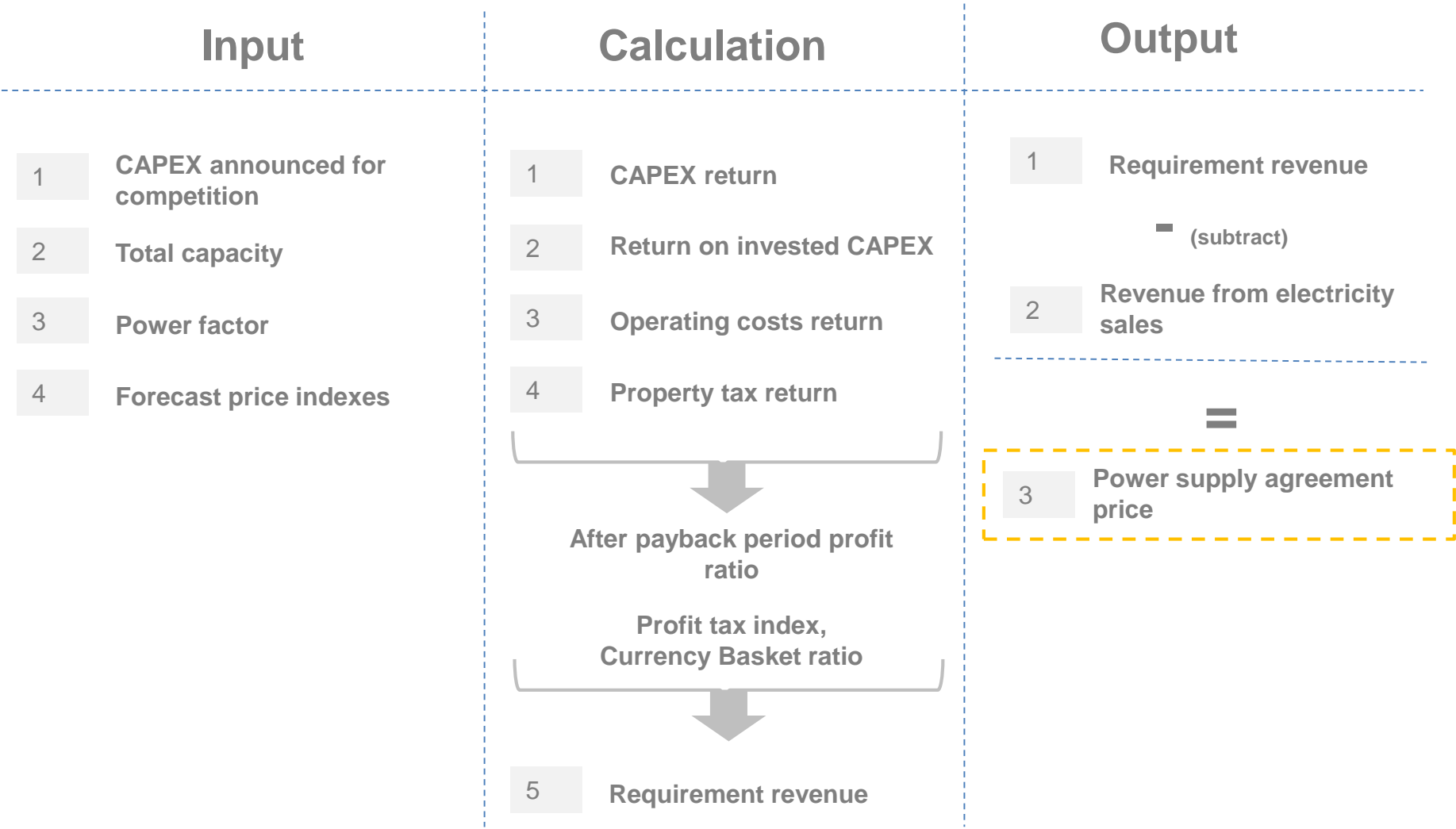
## Criteria for the recognition of the generating facilities qualified:\*

- 1 Generating facility operates solely on the basis of renewable energy sources
- 2 Generating facility commissioned
- 3 Generating facility connected to the electric grids and equipped with measuring instruments
- 4 Generating facility is included in the plan and program of perspective development of electric power of the subject of Russian Federation, on the territory of which is located

After construction and commissioning of each object must pass the qualification procedure in nonprofit partnership "market Council"

*\*Criteria for the recognition of the generating facilities installed by a qualified Rules qualification generating facilities operating on the basis of use of renewable sources of energy (decree of the Government of the Russian Federation of June 3, 2008 № 426)*

# Long Term Capacity Agreement price calculations (simplified)



# Power supply agreement price calculations (15 years period) – example (simplified)

## Input

- 1 **110 000 000 RUR per MW**  
*CAPEX announced for competition*
- 2 **100 MW**  
*Total capacity*
- 3 **35%**  
*Power factor*
- 4 1. Consumer price index forecast  
2. Electricity price forecast  
3. The yield of state obligations forecast

## Calculation

- 1 **11 000 000 000 RUR**  
*CAPEX return*
- 2 **10 560 000 000 RUR**  
*Return on invested CAPEX*
- 3 **3 700 000 000 RUR**  
*Operating costs return*
- 4 **1 470 000 000 RUR**  
*Property tax return*

**0,9**

*After payback period profit ratio*

**1,25**

*Profit tax index*

- 5 **26 400 000 000 RUR**  
*Requirement revenue*

## Output

- 1 **26 400 000 000 RUR**  
*Requirement revenue*

– (subtract)

- 2 **6 000 000 000 RUR**  
*Revenue from electricity sales*

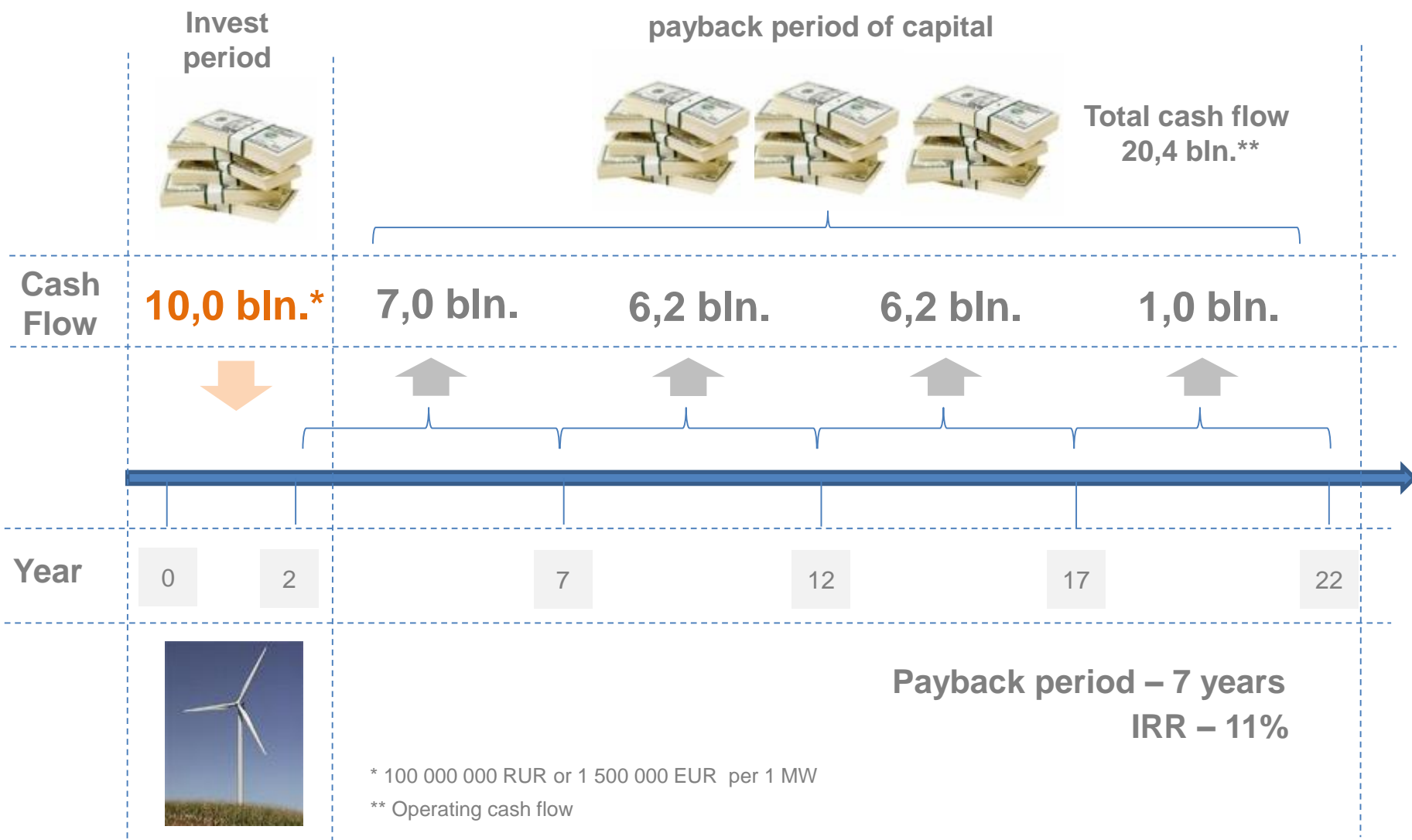
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- 3 **20 400 000 000 RUR**  
*Power supply agreement price*

**The average annual Power supply agreement price - 1 360 000 000 RUR**



# Investment performance of RES projects (simplified)



## Example of calculation of a wind park

### The assumptions in the calculation

Capacity – 100 MBt  
 Capacity factor – 30%  
 CAPEX – 110 000 000 RUB./ MW  
 Start of power supply – 01.01.2019  
 Date of participation at Market Council tender– after 2015 year  
 Rate of return on investment capital – 12%  
 CAPEX announced at the tender in Market Council – 109 670 000 RUB./ MW  
 The share of borrowed funds – 100%  
 Terms of repayment of borrowed funds - the rate of 10%, for 10 years, the payments - annuity

<b>Cash flow for distribution</b>	
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1-5 years – 0,70 bln.RUB.	
6-10 years – (1,51) bln.RUB.	
11-15 years – 6,41 bln.RUB.	
15-20 years – 0,9 bln.RUB.	
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Total	6,50 bln.RUB

Years	1	2	3	4	5	6	7	8	9	10
Cash flow	1,88	1,88	1,86	1,84	1,82	1,57	1,45	1,43	1,39	1,36
Repayment	0,62	0,74	0,82	0,90	1,00	1,10	1,22	1,34	1,48	1,64
Repay-t of int-est on the loan	0,98	1,01	0,93	0,84	0,75	0,64	0,53	0,40	0,26	0,10
Cash balance	0,28	0,14	0,11	0,10	0,07	-0,17	-0,29	-0,31	-0,35	-0,38

Years	11	12	13	14	15	16	17	18	19	20
Cash flow	1,33	1,33	1,31	1,30	1,29	0,17	0,17	0,18	0,19	0,19
Repayment	0,14	-	-	-	-	-	-	-	-	-
Repay-t of int-est on the loan	0,00	-	-	-	-	-	-	-	-	-
Cash balance	1,18	1,33	1,31	1,30	1,29	0,17	0,17	0,18	0,19	0,19

**THANK YOU FOR YOUR ATTENTION!**

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