

# Safeguard Due Diligence Report

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Project Number: 47017-003  
Grant Number: 0417-TAJ  
Period covered: February 2018

## Tajikistan: Wholesale Metering and Transmission Reinforcement Project

Prepared by Barqi Tojik/Huawei and TBEA JV Consortium Amendment # 2 to  
Contract Lot 1  
Dushanbe, Republic of Tajikistan

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## **DUE DILIGENCE REPORT**

### **SOCIAL AND ENVIRONMENTAL ISSUES**

#### **BARQI TOJIK AND HUAWEI & TBEA JV CONSORTIUM AMENDMENT No 2 TO CONTRACT LOT 1**

#### **Republic of Tajikistan Wholesale Metering and Transmission Reinforcement Project (Financed by the Asian Development Bank)**

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For Open Joint Stock Company Barqi Tojik



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## ABBREVIATIONS

Abbreviations	Description
ADB	Asian Development Bank
Agric	Agricultural
AMI	Advanced Metering Infrastructure
BT	Barqi Tojik
CEMMP	Contractor's Environmental, Health and Safety Management and Monitoring Plan
DDR	Due Diligence Report
DP	Displaced Person
CBO	Community Based Organization
CC	Civil Code
DH	Displaced Household
DMS	Detailed Measurement Survey
DP	Displaced Person
ECD	Europe and Central Asia
EHS	Environment, Health & Safety
EMP	Environmental Management Plan
ESD	Barqi Tojik PMU Environment and Social Department(now Monitoring Department)
GRC	Grievance Redress Committee
IEE	Initial Environmental Examination
IOL	Inventory of losses
IR	Involuntary Resettlement
Ha	Hectare/s
HH	Household
HSEMP	Health, Safety and Environmental Management Plan
HVTL	High Voltage Transmission Line
Kg	Kilogram
LA	Land Acquisition
LARP	Land Acquisition and Resettlement Plan
LC	Land Code
MEWR	Ministry of Energy and Water Resources
NGO	Non-Governmental Organization
OGV	Oil Great Volume
p.y.	per year
p.p.	per person
p.m.	per month
PIC	Project Implementation Consultant
PMU	Project Management Unit
QoS	Quality of electricity Supply
ROW	Right Of Way
RT	Republic of Tajikistan
SME	Small and Medium-sized Enterprise/s
SSEMP	Social Safety Environmental Management Plan
TJS	Tajik Somoni
TL	Transmission Line
USD	United States Dollars
ZOI	Zone of Influence



## 1. INTRODUCTION

### 1.1 General information about the Project

1. The Republic of Tajikistan has received financing (grant) from the Asian Development Bank (ADB) towards the cost of Wholesale Metering and Transmission Reinforcement Project. Parts of this financing is being used for payments under the contract for Rehabilitation of Substation Rudaki, Extension of Substation Ayni and Construction of new 220 kV OHL between SS Ayni 220 kV and SS Rudaki. The second part of the financing refers to the replacement of electricity meters, several current transformers and several voltage transformers, the introduction of advanced measurement infrastructure and the introduction of a settlement system. For the second part BT, the ADB and the Consultant agreed on an additional number of wholesale meters to ensure coverage of the balances at all substations included in this project.
2. It is expected that the proposed project will improve the insight view of the supply of electricity, identify the hot spots where losses are higher than average and enable BT to increase the Quality of Supply (QoS). The project covers all substations that are part of Barki Tojik and which are located in the south and north of the Republic.
3. This Compliance report has been prepared by the social and environmental safeguards monitoring department of the PMU and determine whether the implementation of the Addendum to the Land Acquisition and Resettlement Plan of the Wholesale Metering project complied with the stipulations of the approved addendum to LARP and ADB Involuntary Resettlement safeguards requirements. A satisfactory implementation of the LARP is a condition for ADB no objection to the start of physical civil works in the project sections with additional impact on land and income of the local communities.
4. The Projects components include:

#### Lot 1:

- a. Replacement or installation of 3,526 wholesale meters in the substations according to the meter data base,
- b. Replacement or installation of 414 current (CT) and 127 voltage transformers (VT) at the future commercial interface points between generation and transmission,
- c. Installation of communication converters for existing PLC system,
- d. Replacement of SDH access multiplexors in selected substations,
- e. Installation of hard- and software systems for the AMI, EDM and settlement system,
- f. Engineering and design services including required configuration and parameterization services, and
- g. Conduct training for the employees of BT to enable them to operate the systems.



## 2. Project Works description

5. In order to capture unexpected impacts, that may result from changes of design and/or proposed additional activities, that may necessitate modifications to safeguards management arrangements, ADB may require the borrower to undertake due diligence. A Due Diligence Report (DDR) will be compiled to review the need for amendments to borrower's/client's social and environmental safeguards assessments and plans; resulting from the proposed changes and describing (if necessary) updating of environmental management or resettlement plans etc., to ensure that safeguard measures are in place and to avoid, wherever possible, and minimize, mitigate, and compensate for adverse social and environmental impacts.
6. This DDR presents the proposed works in the substations and mitigate social and environmental impacts in the area. The need for any amendments to the environmental management plan and resettlement action plan has to be reviewed
7. The DDR provides an initial screening of the activities to be carried out in the substations, with the intention of identifying potentially significant social and environmental impacts, determining appropriate mitigation measures, and identifying if any further assessment is required. The basic objective is to ensure that nobody is made worse off as a result of such reconstruction/rehabilitation activities. In order to achieve this objective all negative impacts have to be mitigated for and the costs of doing this included in the financial and economic analysis of the project.
8. The replacement or installation of new meters and transformers will take place in substations, only.
9. For new transformers foundations have to be constructed and the transformers will be erected on the foundations. The new meters replace the old meters or will be installed inside of the substations where no meters were installed until now. The enlargement of the number of meters installed in the substations will not require different work as it was already planned. Just the number of transformers and meters will increase.
10. The following table shows the proposed activities and equipment that will be to be added or replaced:

**Table 1. Proposed additional activities for Lot 1**

No	Name of equipment	Quantity	Equipment characteristics
1	Additional three-phase smart meters	45 1 847 -48	4 Q accuracy class 0,2 4 Q accuracy class 0,5 2 Q accuracy class 0,5
2	Replacement of current transformers. Additional 110 kV current transformers	51 2	200-400/5 class 0,2S; 0,5S; 5P20 300-600/5 class 0,2S; 0,5S; 5P20
3	Additional voltage transformers 110 kV	2	Secondary voltage 100 V
4	Replacement of current transformers. Additional 35 kV current transformers	54 99	300-600/5 class 0,2S; 0,5S; 5P20
5	Voltage transformers 35 kV	-7	Secondary voltage 100 V
6	Current transformers 6, 10 kV	31	Accuracy class 0,5 Secondary current 5A
7	Voltage transformers 10 kV	- 116	Secondary voltage 100 V
8	Testing equipment: <ul style="list-style-type: none"> <li>Laptop</li> <li>Hand held Meter Reading Units</li> <li>Portable meter testing and tool box class 0.2</li> <li>Meter Testing and Calibration station</li> </ul>	6 - 10 6 5	



No	Name of equipment	Quantity	Equipment characteristics
9	Additional mandatory spare parts	90 320 -101 -115 4 4 5 4 20	Smart meter 4 Q accuracy class 0,2 Smart meter 4 Q accuracy class 0,5 Smart meter 2 Q accuracy class 0,5 Current transformers 0,4kV Current transformers 110kV Voltage transformers 110 kV Current transformers 10kV Voltage transformers 10 kV Modems/Data Concentrators
10	Additional work for the installation of three-phase meters	1892	Dismantling of old meters and installation of new ones
11	Meter cabinets	-28	Size of meter cabinets will change, that is why less meters cabinets are needed!
12	Additional works on installation of 110, 35 kV transformers	103	Detailed design of transformer replacement or installation of new ones. Foundation works, installation works, including wiring, cables has to be done
13	In addition: project management, reporting		

### 3. Potential impacts

11. The construction of foundations, erections of transformers and replacement or installation of meters will be carried out inside the substations, so no disturbance for residents is expected. The construction of foundation can be done without disconnecting the substation from the grid. The connection of the transformers to the grid will require a disconnection of the substation from the grid for up to duration of three days. The replacement or installation of meters can be done in short time. Depending on the net topology the disconnection of very few substations will affect the population; the majority of the substation disconnection will not lead to a lack of energy for the population.
12. The proposed project works will not have any negative impacts and consequences on public facilities (schools, hospitals cemeteries, mosques and other sites of religious, cultural and historical values). All works will be carried out inside the substations of Barqi Tojik.
13. Due to the fact that the works will be developed inside the substations, as sign posting, collective and individual protective equipment and coordination with BT's operation staff, Safety and Work Procedures will be drawn up by the Contractor and reviewed and approved by PMU and given out to the parties before works start.
14. The exposed works is planned to take place from July 2018 to November 2019.

### 4. Environmental Baseline Analysis

15. The Initial Environment Examination 2014 September and its final update 2016 December apply to this document.



## 5. Institutional arrangement

16. The construction contractor is obliged to implement the EMP. Doing so, he shall set up a Health, Safety and Environmental Management Plan (HSEMP) and install a Health, Safety and Environmental Management System (HSEMS) during the entire construction period covering all construction sites and all construction activities.
17. The 'Social Sector and Environmental Monitoring Department' within the PMU as a governmental establishment will be responsible for supervising and monitoring the implementation of the EMP and social safeguard requirements by the CC.
18. For that, the PMU shall perform field visits about twice a month. The PMU is supported by the Project Implementation Consultant (PIC). The CC will prepare monthly progress reports about the implementation of the EMP. Based on these reports and own field visits the PMU shall prepare monthly Safeguard Monitoring Reports showing the progress of the implementation of the Environmental Management Plan (EMP). The reports shall contain all discrepancies from the EMP and list all HSE relevant incidents and accidents that occur during the implementation of Project.
19. Based on these reports the Social Sector and Environmental Monitoring Department will prepare semi-annual safeguards performance and monitoring reports and submit them to ADB, to Barqi Tojik and to other relevant national authorities. In doing so, the PMU will be supported by PIC (Project Implementation Consultant).

## 6. Key Findings

20. No disturbance for flora and fauna are expected as all works will be done inside the Substation area.
21. No impact on land and assets of local communities is expected given that the works will be carried out inside the substations.
22. The result of the study suggests that the proposed rehabilitation activities will not have impact on people and communities lands, structures and properties as the construction works will be carried out within existing substation. Project does not envisage economic and/or physical relocation impact.
23. The proposed project works will not have any negative impacts and consequences on public facilities (schools, hospitals cemeteries, mosques and other sites of religious, cultural and historical values). Community properties, trees, crops, and any other income generating activities will not be affected by the project.
24. All the consideration taken in the IEE for the substation works applies to the amendment.

## 7. Conclusions and Recommendations

25. It is not necessary to update the SSEMP for additional works as the work is similar to the already contracted work. Just the number of transformers and meters will increase. The SSEMP for original project was approved in May 2017 and includes all relevant mitigation measures, which apply to the additional works as well.





26. Hereby based on the above-stated and the results of the social and environmental safeguards assessment, the proposed extension of the number of transformers and meters in the substations has No Resettlement Impact considering the following:
1. Construction activities does not require new camp and or machinery parking area and additional space for heavy machinery movement;
  2. There is no widening of substations (construction of additional infrastructure outside of the boundaries) activities in the proposed works. Construction area is limited within existing facilities.
  3. There no any tenants or persons who use land unofficially, etc.
27. In case any claims or complaints are submitted during the construction period, an effective and efficient Grievance Redress Committee being in place, will enhance provision of timely and sensible hearings and facilitate solutions It will be set up an intermediate depot to temporarily store the old transformers and devices and parts removed from the substations then the parts shall be classified and finally stored and or recycle according to its use.
28. It's needed making a Parts and Scrap and Disposal Devices Treatment Plan, to avoid uncontrolled piling up of those items forming polluting spots
32. The proposed work is predominantly existing piece of infrastructure that does not create any impacts not already anticipated. During construction or maintenance work, the Contractor will take all measures to mitigate the possible adverse effects (such as noise and dust) and the Consultant in turn will run strict monitoring of the Contractor's activity for timely undertaking of mitigation measures in line with the accepted EMP.
33. The project will not create any additional impact on cultural or heritage sites and neither does it pass through area subject to heavy development. Proposed rehabilitation works will not create conflicts with natural resource allocation.



## Annex 1: Amendment 2 Schedules

### AMI Project Master Plan

No	WBS	Task Name	Duration	Start	Finish	% Complete
1	1	Initial tasks/Первоначальные задачи	200 days?	Mon 9/26/16	Fri 6/30/17	100%
2	1.1	Notification of Award/Уведомление о Присуждении	1 day?	Mon 9/26/16	Mon 9/26/16	100%
3	1.2	Pre-contract negotiations/Предконтрактные переговоры	4 days?	Tue 9/27/16	Fri 9/30/16	100%
4	1.3	Signing the contract/Подписание контракта	1 day?	Mon 10/3/16	Mon 10/3/16	100%
5	1.4	Mobilization (represented by the Mobilization Plan)/Мобилизация (представляется План мобилизации)	9 days?	Wed 11/9/16	Mon 11/21/16	100%
6	1.5	Establishment of a project office (including on sites)/Создание проектного офиса (в т.ч. и на участках)	9 days	Wed 11/9/16	Mon 11/21/16	100%
7	1.6	Kick-off Meeting/ Стартовое совещание	1 day?	Tue 11/22/16	Tue 11/22/16	100%
8	1.7	Receipt of advance payment/Поступление аванса	1 day?	Tue 12/6/16	Tue 12/6/16	100%
9	1.8	Signing the contract (supplementary agreement) for backup Data Center/ Подписание контракта (доп. Соглашение) для резервного ЦОД	1 day?	Fri 6/30/17	Fri 6/30/17	100%
10	2	Engineering/Технические работы	573 days?	Mon 12/5/16	Wed 2/13/19	61%
11	2.1	LOD submission/Предоставление списка документов	1 day?	Fri 12/9/16	Fri 12/9/16	90%
12	2.2	Project management procedure submission and approval/Предоставление документа по процессу управления проектом и получение одобрения	50 days	Mon 12/12/16	Fri 2/17/17	95%
13	2.3	Hardware/ Оборудование	568 days	Mon 12/12/16	Wed 2/13/19	60%
14	2.3.1	Site survey(DC and Central electric networks substations - 42)/Обзор сайтов (ЦОД и подстанции ЦЭС - 42)	54 days	Mon 12/12/16	Thu 2/23/17	100%
15	2.3.2	Drawings submission and approval(Data Center)/Предоставление чертежей и получение одобрения (ЦОД)	60 days	Tue 12/20/16	Mon 3/13/17	100%
16	2.3.3	List of equipment submission and approval(Date Center)/ Предоставление списка оборудования на рассмотрение и получение одобрения (ЦОД)	13 days	Tue 3/14/17	Thu 3/30/17	100%
17	2.3.4	List of equipment submission and approval(DCU)/Предоставление списка оборудования на рассмотрение и получение одобрения (DCU)	13 days	Fri 3/31/17	Tue 4/18/17	100%
18	2.3.5	List of equipment submission and approval(CT, VT, Meter) - 42 substations/Предоставление списка оборудования на рассмотрение и получение одобрения (CT, VT, счетчики) - 42 подстанций	13 days	Thu 5/18/17	Mon 6/5/17	80%
19	2.3.6	Acceptance procedure submission and approval/Предоставление документов по процедуре приема на рассмотрение и получение одобрения	30 days	Tue 6/6/17	Mon 7/17/17	80%
20	2.3.7	Site survey(Backup DC)/Обзор сайта (резервный ЦОД)	2 days	Thu 7/6/17	Fri 7/7/17	100%
21	2.3.8	Drawings submission and approval(Backup DC)/Предоставление чертежей и получение одобрения (резервный ЦОД)	65 days	Wed 8/8/17	Tue 11/7/17	80%
22	2.3.9	List of equipment submission and approval(Backup Data Center)/ Предоставление списка оборудования на рассмотрение и получение одобрения (резервного ЦОД)	22 days	Fri 12/15/17	Mon 1/15/18	0%
23	2.3.10	Site survey (Other Substations)/Обзор сайтов (другие подстанции)	135 days	Mon 2/27/17	Fri 9/1/17	100%
24	2.3.10.1	Site survey of Khatlon region/Обзор сайтов по региону Хатлон	78 days	Mon 2/27/17	Wed 6/14/17	100%
25	2.3.10.2	Site Survey of DRS region/Обзор сайтов по региону РРП	20 days	Thu 6/15/17	Wed 7/12/17	100%
26	2.3.10.3	Site Survey of SOGD region/Обзор сайтов по региону СОГД	37 days	Thu 7/13/17	Fri 9/1/17	100%
27	2.3.11	Drawings submission and approval/Substations (CT & VT)/Предоставление чертежей и одобрение (подстанции)	144 days	Tue 3/7/17	Fri 9/22/17	80%
28	2.3.12	Drawings submission and approval/Substations (Meters, Meter Test (подстанции)	31 days	Wed 8/23/17	Wed 10/4/17	65%
29	2.3.13	Additional Drawings submission and approval (Substations (Meters, CT & VT)/ Предоставление дополнительных чертежей и одобрение (Подстанции (Счетчики, ТТ & ТН))	190 days	Mon 4/2/18	Fri 12/21/18	0%
30	2.3.14	List of equipment submission and approval(Substations)/Предоставление списка оборудования на рассмотрение и получение одобрения (подстанции)	20 days	Wed 10/25/17	Tue 11/21/17	0%
31	2.3.15	List of additional equipment submission and approval (Substations(Meters, CT & VT)/Предоставление списка дополнительного оборудования на рассмотрение и получение одобрения (подстанции/Счетчики, ТТ & ТН))	34 days	Fri 12/28/18	Wed 2/13/19	0%
32	2.4	AMI software design submission and approval/ Предоставление разработки программного обеспечения АМІ на рассмотрение и получение одобрения	388 days	Mon 12/5/16	Wed 5/30/18	59%
33	2.4.1	Requirement Analysis and Functional Scope Definition/ Анализ требований и определение функциональных возможностей	30 days	Mon 12/5/16	Fri 1/13/17	100%
34	2.4.2	Detail design specification submission and approval/Предоставление спецификаций детального проектирования на рассмотрение и получение одобрения	20 days	Mon 1/16/17	Fri 2/10/17	90%
35	2.4.3	Customization Design/ Проектирование дизайна	61 days	Fri 2/24/17	Fri 5/19/17	90%
36	2.4.4	Detail design specification submission and approval (Backup DC)/Предоставление спецификаций детального проектирования на рассмотрение и получение одобрения (Резервный ЦОД)	48 days	Mon 7/17/17	Wed 9/20/17	70%
37	2.4.5	Customization Development/ Разработка по требованиям Заказчика	267 days	Tue 5/23/17	Wed 5/30/18	44%
38	2.4.5.1	Customization Part 1/ Разработка этап 1	166 days	Tue 5/23/17	Tue 1/9/18	70%
39	2.4.5.2	Customization Part 2 (Main and Backup DC)/ Разработка этап 2 (Основной и резервный ЦОД)	50 days	Wed 1/10/18	Tue 3/20/18	0%
40	2.4.5.3	Customization Part 3 (Main and Backup DC)/ Разработка этап 3 (Основной и резервный ЦОД)	51 days	Wed 3/21/18	Wed 5/30/18	0%
41	3	Procurement/Production and FAT/ Поставка (Производство и окончательные приёмочные испытания)	587 days	Fri 3/31/17	Mon 7/1/19	23%





42	3.1	Production for first batch(DC)/ Производство первой партии (ЦОД)	25 days	Fri 3/31/17	Thu 5/4/17	100%
43	3.2	Production for first batch(DCU)/ Производство первой партии (DCU)	25 days	Wed 4/19/17	Tue 5/23/17	100%
44	3.3	Production for second batch(CT,VT,Meters)/ Производство второй партии (CT, VT, счетчики)	30 days	Tue 1/23/18	Mon 3/5/18	0%
45	3.4	Production for third batch(CT,VT,Meters)/ Производство третьей партии (CT, VT, счетчики)	30 days	Mon 5/21/18	Fri 6/29/18	0%
46	3.5	Production for fourth batch(CT,VT,Meters)/ Производство четвертой партии (CT, VT, счетчики)	30 days	Fri 10/5/18	Thu 11/15/18	0%
47	3.6	Production for fifth batch(Backup DC)/ Производство пятой партии (Резервный ЦОД)	25 days	Mon 1/29/18	Fri 3/2/18	0%
48	3.7	AMI hardware and software environment establishment/Подготовка среды для производства оборудования и программного обеспечения AMI	20 days	Fri 5/5/17	Thu 6/1/17	100%
49	3.8	<b>FAT in China/ Приёмочные испытания в Китае</b>	200 days	Mon 6/12/17	Fri 3/16/18	17%
50	3.8.1	Data Center and software FAT in China/ Приёмочные испытания по ЦОД и ПО в Китае	10 days	Mon 6/12/17	Fri 6/23/17	33%
51	3.8.2	CT,VT Meter and Meter test equipment FAT in China; Meter equipment Training/ Приёмочные испытания по CT, VT и счетчикам в Китае; Тренинг по счетчикам	10 days	Mon 3/5/18	Fri 3/16/18	0%
52	3.9	International transportation for first batch(DC)/ Международная транспортировка первой партии (ЦОД)	45 days	Mon 6/26/17	Fri 8/25/17	100%
53	3.1	International transportation for second batch (CT, VT Meter)/ Международная транспортировка второй партии (CT, VT счетчики)	36 days	Tue 3/20/18	Tue 5/8/18	0%
54	3.11	International transportation for third batch (CT, VT Meter)/ Международная транспортировка третьей партии (CT, VT счетчики)	36 days	Mon 7/9/18	Mon 8/27/18	0%
55	3.12	International transportation for fourth batch (CT, VT Meter)/ Международная транспортировка четвертой партии (CT, VT счетчики)	36 days	Fri 11/23/18	Fri 1/11/19	0%
56	3.13	International transportation for fifth batch(Backup DC)/ Международная транспортировка пятой партии (резервный ЦОД)	30 days	Mon 3/5/18	Fri 4/13/18	0%
57	3.14	Production for sixth batch(DCU)/ Производство шестой партии (DCU)	28 days	Mon 3/12/18	Wed 4/18/18	0%
58	3.15	International transportation for sixth batch/Международная транспортировка шестой партии	10 days	Thu 4/19/18	Wed 5/2/18	0%
59	3.16	Production for seventh batch(DCU)/Производство седьмой партии (DCU)	25 days	Thu 7/26/18	Wed 8/29/18	0%
60	3.17	International transportation for seventh batch/Международная транспортировка седьмой партии	10 days	Thu 8/30/18	Wed 9/12/18	0%
61	3.18	Production for eighth batch(DCU)/ Производство восьмой партии (DCU)	25 days	Thu 12/6/18	Wed 1/9/19	0%
62	3.19	International transportation for eighth batch/Международная транспортировка восьмой партии	10 days	Thu 1/10/19	Wed 1/23/19	0%
63	3.2	Production for ninth batch(DCU)/ Производство девятой партии (DCU)	25 days	Thu 4/18/19	Wed 5/22/19	0%
64	3.21	International transportation for ninth batch/Международная транспортировка девятой партии	28 days	Thu 5/23/19	Mon 7/1/19	0%
65	3.22	Production for tenth batch(Meters)/ Производство десятой партии (счетчики)	30 days	Fri 2/22/19	Thu 4/4/19	0%
66	3.23	International transportation for tenth batch (Meters)/Международная транспортировка десятой партии (Счетчики)	36 days	Fri 4/12/19	Fri 5/31/19	0%
67	3.24	<b>Local procurement/Локальные закупочные работы</b>	206.5 days	Fri 4/14/17	Mon 1/29/18	60%
68	3.24.1	Data Center renovation subcontractor selection/Отбор подрядчика для реконструкции ЦОД	30 days	Fri 4/14/17	Thu 5/25/17	100%
69	3.24.2	Backup Data Center renovation subcontractor selection/Отбор подрядчика для реконструкции резервного ЦОД	30 days	Thu 11/9/17	Mon 1/29/18	20%
70	4	<b>Construction/ Строительство</b>	760 days?	Mon 5/29/17	Fri 4/24/20	10%
71	4.1	AMI Data Center renovation/ Ремонт ЦОД AMI	50 days?	Mon 5/29/17	Fri 8/4/17	100%
72	4.2	Acceptance works for DC renovation/Приёмочные работы по ремонту ЦОД	3 days	Mon 8/7/17	Wed 8/9/17	95%
73	4.3	AMI Backup Data Center renovation/ Ремонт резервного ЦОД AMI	45 days	Mon 2/5/18	Mon 4/9/18	0%
74	4.4	Acceptance works for DC renovation (Backup DC)/Приёмочные работы по ремонту ЦОД (Резервный ЦОД)	3 days	Mon 4/9/18	Thu 4/12/18	0%
75	4.5	<b>AMI master station installation and pre-commissioning/Установка и пусконаладка ЦОД AMI</b>	311 days	Thu 8/31/17	Thu 11/8/18	20%
76	4.5.1	AMI master station hardware (including basic software) installation and pre-commissioning/ Установка оборудования (включая базовое ПО) и пусконаладочные работы в ЦОД AMI	42 days	Thu 8/31/17	Fri 10/27/17	70%
77	4.5.2	AMI master station power cable and water pipe installation/Установка системы питания и трубы водоснабжения для основного ЦОД	15 days	Mon 12/11/17	Fri 12/29/17	90%
78	4.5.3	Mechanical completion Acceptance for main DC hardware/ Механическая приёмка основного ЦОД по завершению установки оборудования	5 days	Mon 11/20/17	Fri 11/24/17	95%
79	4.5.4	AMI Software Training in China/ Тренинг по программному обеспечению AMI в Китае	10 days	Mon 9/18/17	Fri 9/29/17	100%
80	4.5.5	Billing system initiation/ Инициация системы биллинга	5 days	Mon 1/1/18	Fri 1/5/18	0%
81	4.5.6	CRM system initiation/ Инициация системы управления связями с потребителями	5 days	Mon 1/1/18	Fri 1/5/18	0%
82	4.5.7	Archive system initiation/Инициация системы архивирования	5 days	Mon 1/1/18	Fri 1/5/18	0%
83	4.5.8	MDM system initiation/Инициация системы управления данными счетчика	5 days	Mon 1/1/18	Fri 1/5/18	0%
84	4.5.9	Metering system initiation/ Инициация системы учета	5 days	Mon 1/1/18	Fri 1/5/18	0%
85	4.5.10	Portal system initiation/ Инициация портальной системы	5 days	Mon 1/1/18	Fri 1/5/18	0%
86	4.5.11	Foundation works on substations (99 substations)/ Фундаментные работы на подстанциях (99 подстанций)	181 days	Thu 3/1/18	Thu 11/8/18	0%
87	4.6	Typical substation installation and pre-commissioning (5 Substation)/Установка типичной подстанции и пусконаладочные работы (5 Подстанций)	45 days	Wed 5/16/18	Tue 7/17/18	0%
88	4.7	Software upgrade (Customization #1)/ Обновление программного обеспечения (Разработка этап 1)	1 day	Mon 1/8/18	Mon 1/8/18	0%



89	4.8	Site Acceptance Test for DC software (FAT #1 #2)/ Приёмочные работы программного обеспечения ЦОД на сайте (ЗПИ №1 и №2)	15 days	Tue 1/9/18	Mon 1/29/18	0%
90	4.9	AMI Backup master station hardware (including basic software) installation and pre-commissioning (Backup DC)/ Установка оборудования (включая базовое ПО) и пусконаладочные работы в Резервного ЦОД AMI (Резервный ЦОД)	15 days	Mon 4/16/18	Fri 5/4/18	0%
91	4.1	Mechanical completion Acceptance for backup DC hardware/ Механическая приёмка резервного ЦОД по завершению установки оборудования	4 days	Mon 5/7/18	Thu 5/10/18	0%
92	4.11	AMI software initiation (Backup DC)/Инициация программного обеспечения AMI (Резервный ЦОД)	14 days	Fri 5/11/18	Wed 5/30/18	0%
93	4.12	Site Acceptance Test for DC Software customization (FAT#3)/ Приёмочные работы персонализации программного обеспечения ЦОД (ЗПИ №3)	20 days	Thu 5/31/18	Wed 6/27/18	0%
94	4.13	Software Troubleshooting (Including on site Training)/ Устранение неполадок программного обеспечения (включая он сайт Тренинг)	60 days	Thu 6/28/18	Wed 9/19/18	0%
95	4.14	AMI substation installation/ Установка подстанции AMI	360 days	Wed 7/18/18	Tue 12/3/19	0%
96	4.15	Substations additional meters, CT & VT installation/ Установка дополнительных счётчиков, ТТ & ТН на подстанциях	225 days	Mon 6/17/19	Fri 4/24/20	0%
97	5	Commissioning and Acceptance/ Пусконаладочные работы и приемка	506 days	Wed 5/23/18	Wed 4/29/20	0%
98	5.1	Data Center commissioning and operational acceptance/Ввод в эксплуатацию в ЦОД AMI и эксплуатационная приемка	15 days	Thu 6/28/18	Wed 7/18/18	0%
99	5.2	Backup Data Center commissioning and operational acceptance/Ввод в эксплуатацию в резервного ЦОД AMI и эксплуатационная приемка	15 days	Thu 5/31/18	Wed 6/20/18	0%
100	5.3	Typical substation commissioning and completion acceptance/Ввод в эксплуатацию типичной подстанции и приемка по завершению	45 days	Wed 5/23/18	Tue 7/24/18	0%
101	5.4	Software customization Pre-commissioning and completion acceptance/ Пусконаладочные работы по персонализации ПО и приемка по завершению	15 days	Thu 7/19/18	Wed 8/8/18	0%
102	5.5	Software customization commissioning and operational acceptance/Ввод в эксплуатацию персонализированного ПО и эксплуатационная приемка	15 days	Thu 7/19/18	Wed 8/8/18	0%
103	5.6	Other substation commissioning and operational acceptance by site/Ввод в эксплуатацию других подстанций AMI и эксплуатационная приемка по сайтам	380 days	Wed 7/25/18	Tue 1/7/20	0%
104	5.7	Additional substation (meters, CT & VT) commissioning and operational acceptance by site/Ввод в эксплуатацию других подстанций (счётчики, ТТ & ТН) AMI и эксплуатационная приемка по сайтам	218 days	Mon 7/1/19	Wed 4/29/20	0%