



هيئة الربط الكهربائي لدول مجلس التعاون لدول الخليج العربية
Gulf Cooperation Council Interconnection Authority

Trading in GCCIA Electricity Market

GCCIA - Market Operations

Market Strategy 2023

1. Demonstrations of trading platform and cross-border capacity auction platform (simulation)
2. Case study: Energy Contract Facilitation
3. Market/price modelling and data sharing (GAMS): practical experience

Developments of the GCC Electricity Market



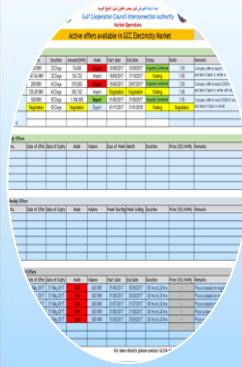
**GA+PETA
2009**



**TRADEDAR
T™
2012/14**



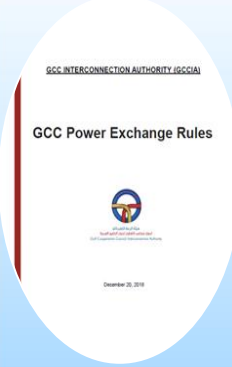
**Initiative
to Develop
GCC
Market
2013**



**Roundtable
Meeting
2014**



**4 Pilot
Projects
Incentive
Program
2015-2018**



**Market
Rules
Exchange
Rules
2018**



**GEMS
System
Day
Ahead
Market –
Continuous
2018**

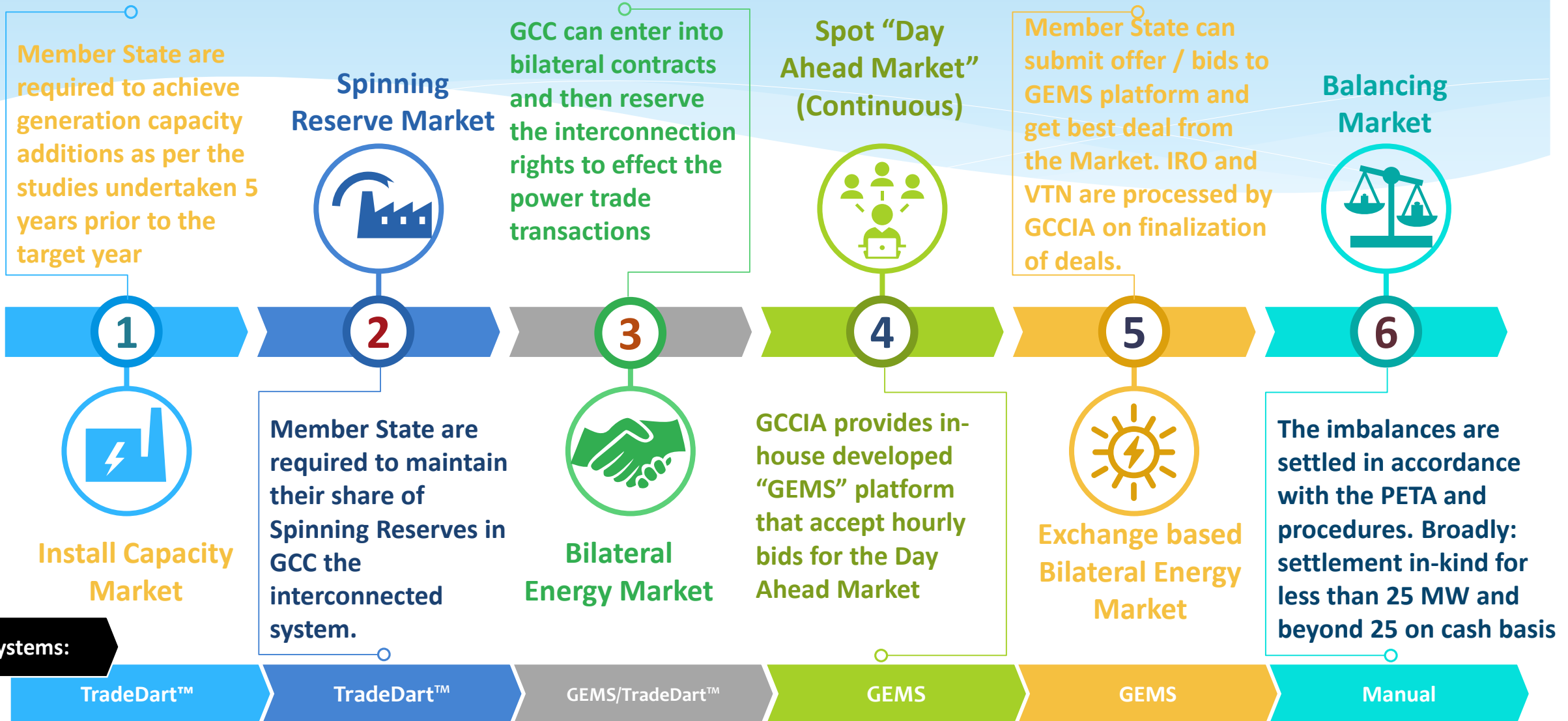


**GEMS -
Contract
Registration
2020**



**New
EMMS &
DAM
System by
2025**

GCC Electricity Market

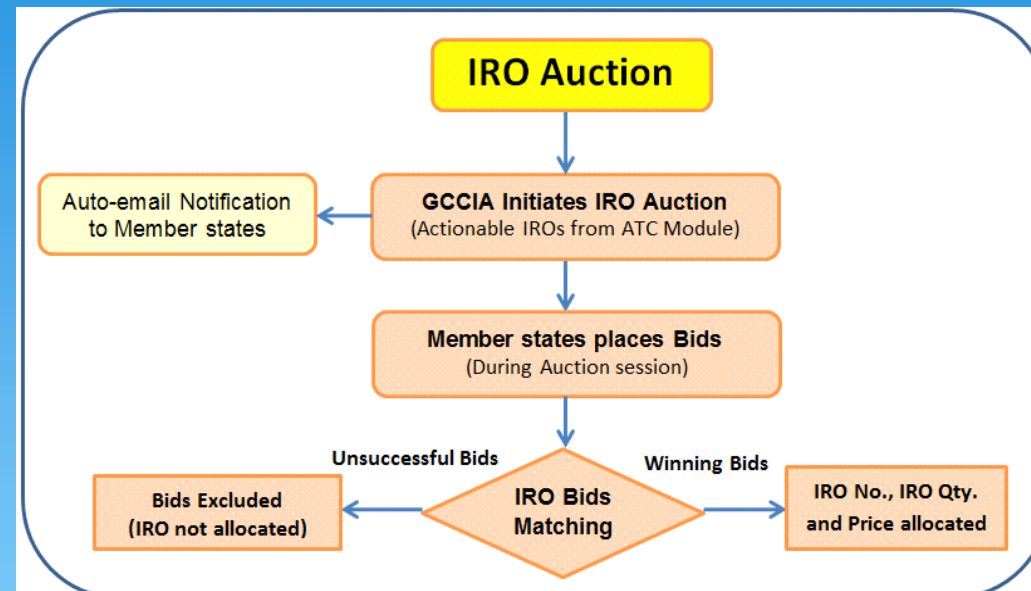
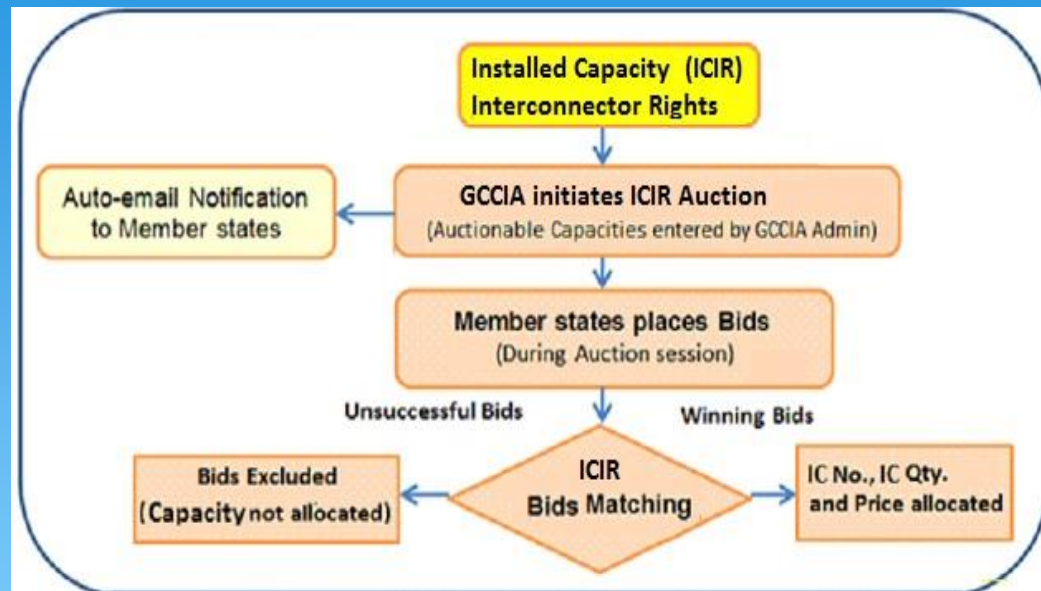


The new EMMS system will replace all the systems

GCCIA Electricity Markets - Overview

Particulars	Monthly IRO Market	Contract Registration	Daily IRO Market	Day Ahead Market (Continuous)	Bilateral Market
Regulatory Framework	PETA	Market Rules	PETA	Market Rules & Exchange Rules	Not Applicable
Market Timeframe	Month Ahead	Month Ahead	Day Ahead	Day Ahead	Always open
Market Opening Time	10 to 20 of the month	20 to 24 of the month	07:30 to 09:00 of the day	09:30 to 12:00 of the day	Always open
IRO Capacity Allocation	Auction based	Availability based	Auction based	Availability based	Manual Application
IRO Pricing	Monthly auction results	Price of monthly auctions	Daily auction results	Price of daily auctions	Not Applicable
VTN Issue	Manual Application	Automatic by system	Manual Application	Automatic by system	Manual Application
Energy Invoicing	Bilateral	Bilateral	Bilateral	GCCIA	Bilateral
Energy Invoicing Cycle	Bilateral Agreement	Bilateral Agreement	Bilateral Agreement	Monthly	Bilateral Agreement
Software System	EMMS TRADEART	GCCIA's GEMS	EMMS TRADEART	GCCIA's GEMS	GCCIA's GEMS
Status	Launched in 2013	Launched in 2020	Launched in 2013	Launched in 2018	Launched in 2020

GCCIA Transmission Capacity



View Auction Details Member State-Wise

All Auction Details can be viewed from below option

Type of Right : Type of Auction :

Status :

From Bidding Date : To Bidding Date :

☐ Auction No. :

Auction ID	Type of Right	Type of Auction	Auction Year/Month/Date	Auction Start Period	Auction End Period	Bidding Start Date - Time	Bidding End Date - Time	Min Bid Price	Auction Status	Last Updated Time	Updated By	Remarks
38	IRO	Monthly	APRIL 2013	24	24	13-03-2013 10:54:00	13-03-2013 10:55:00	5.00	Close	13-03-2013 10:55:00	GCCIA	By System
38	IRO	Monthly	APRIL 2013	24	24	13-03-2013 10:54:00	13-03-2013 10:55:00	5.00	Close	13-03-2013 10:55:00	GCCIA	By System
38	IRO	Monthly	APRIL 2013	24	24	13-03-2013 10:54:00	13-03-2013 10:55:00	5.00	Open	13-03-2013 10:54:00	GCCIA	By System
38	IRO	Monthly	APRIL 2013	24	24	13-03-2013 10:54:00	13-03-2013 10:55:00	5.00	Initiated	13-03-2013 10:53:21	GCCIA	

File Type :

Auction Details

Auction No. : 38

Type of Right : **Interconnection Rights of Operations**

Type of Auction :

Auction Start Period :

Bidding Start Date :

Bidding Start Time :

Remarks :

Auction Year/Month/Date :

Auction End Period :

Bidding End Date :

Bidding End Time :

Min Bid Price : (USD/MWhr)

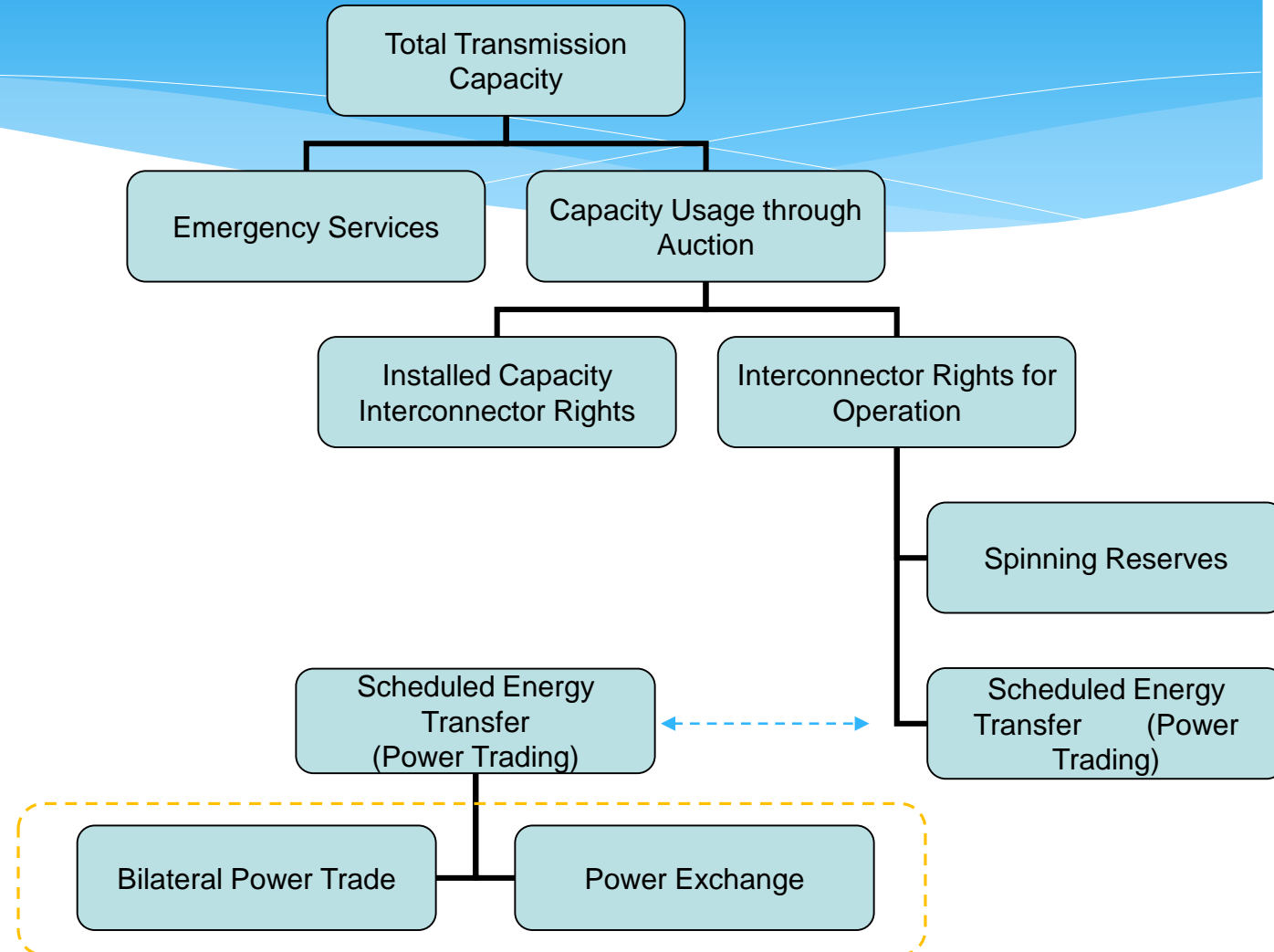
Member State - Member State wise ATC Details

Exporting MS	KUW	KSA	BAH	QTR	UAE
KUW	-	-	-	-	99999
KSA	-	-	-	-	99999
BAH	-	-	-	-	99999
QTR	-	-	-	-	99999
UAE	99799	99799	99899	99999	-

GCCIA Transmission Capacity

According to the usage rights granted under PETA, the rights for using the interconnector is given for:

- * Meeting Installed Capacity Requirements through Installed Capacity Interconnector Rights (ICIR)
- * Operational Rights for meeting Spinning Reserves requirements and making Power Trade transactions through Interconnector Rights for Operation (IRO)
- * The IRO rights for power trading are further classified for Bilateral Power Trade and for trading on the Power Exchange



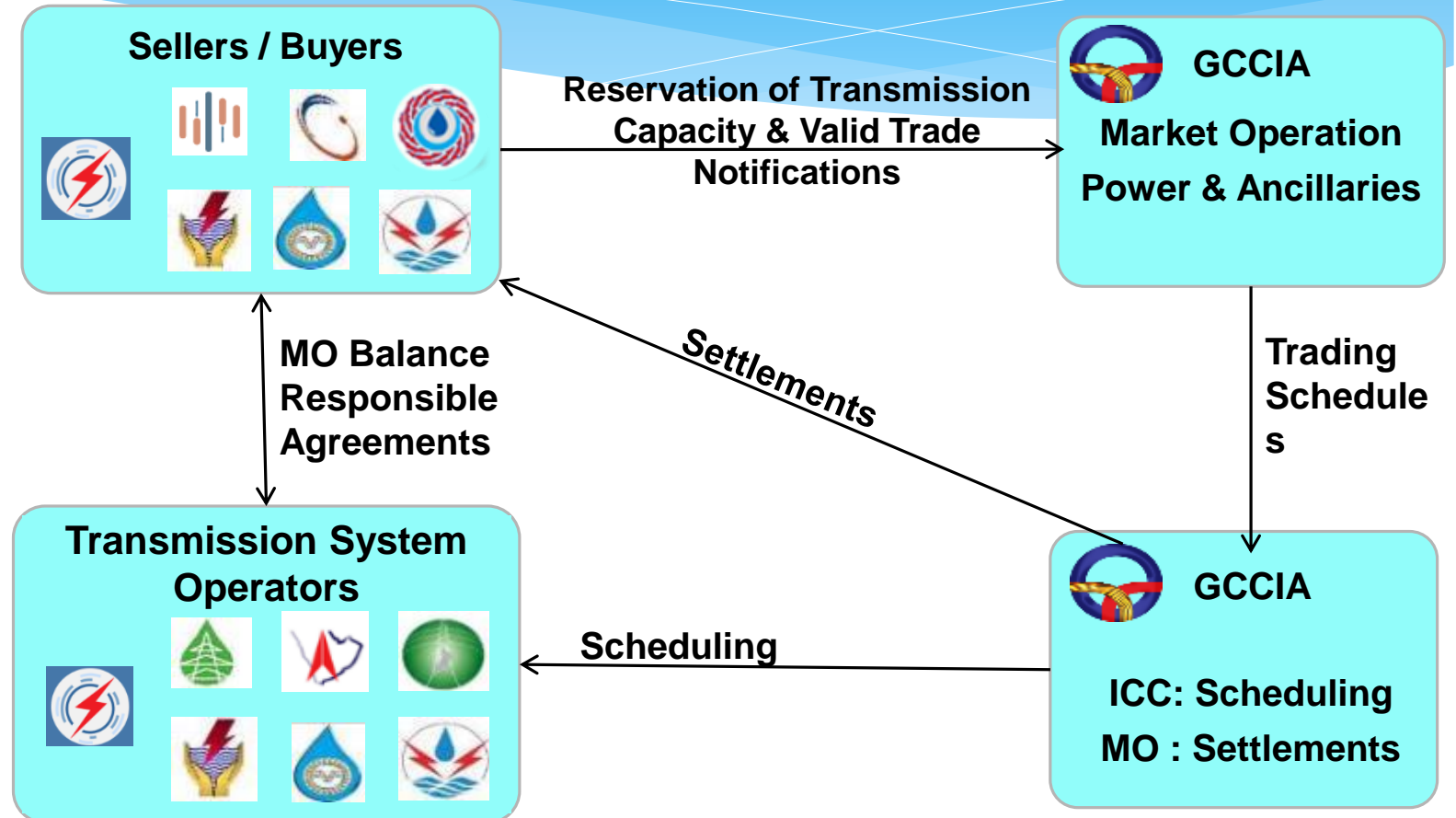
Capacity Allocation – ICIR & IRO

- * Current agreement (PETA) requires for explicit auction of transmission capacity;
 - * The auction is through single side bidding where the min. auction price is set by the ARC for yearly, monthly and daily auctions;
 - * Basically, two products for each auction namely base load (24 hours), peak and off-peak;
- The bids received are sorted with the highest bids first, until the available transmission capacity is completely utilized. The clearing price for the transmission capacity is calculated and each bidder pays the price less than or equal to the price they bid for in the auction which is the price bid of the last bidder to be allotted the capacity;
 - The current explicit auction mechanism is complex for short term capacity reservation and affects the liquidity on the market. Therefore, implicit auction is implemented for the power exchange based market.

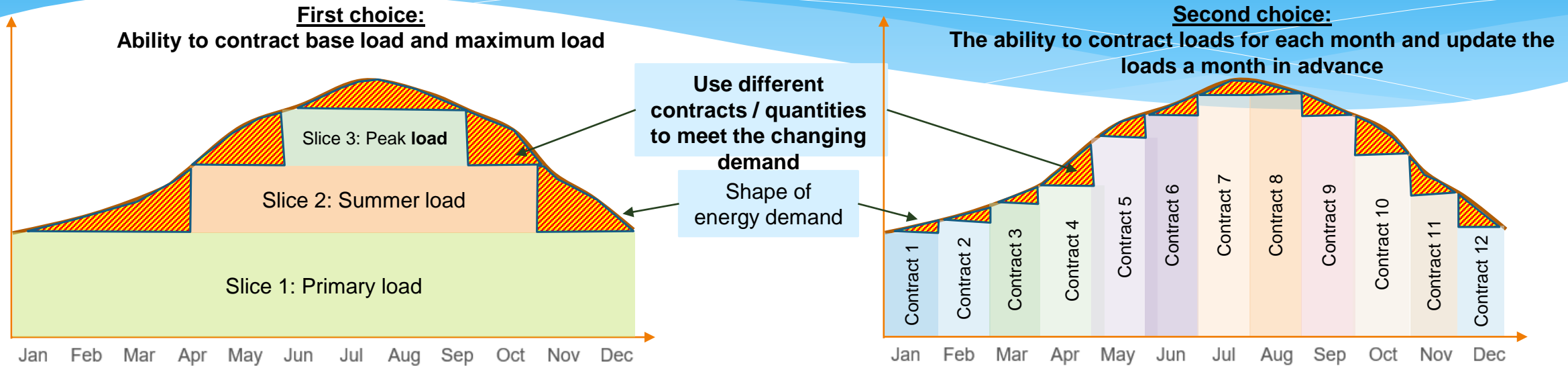
Cumulative Capacity			
3000 MW		H7 Bidder 800 MW	
2200 MW		H6 Bidder 600 MW	
1600 MW		H5 Bidder 400 MW	
1200 MW		H4 Bidder 200 MW	Cut-off capacity allocation at the Available Transmission Capacity and clearing price at the price quoted by H4 bidder
1000 MW		H3 Bidder 300 MW	
700 MW		H2 Bidder 400 MW	
300 MW		H1 Bidder 300 MW	
Available Transmission Capacity for the segment in the above case is 1200 MW			

Power Trading through GCCIA

- * Step 1: The buyer / seller participates transmission capacity auctions made by GCCIA and reserves the rights;
- * Step 2: The buyer / seller schedules the power trade transaction through GCCIA;
- * Step 3: Seller executes the power flow as per schedule
- * Step 4: GCCIA calculates the ex-post trade balance and makes the settlement with buyers / sellers



Basic Contracting Strategy



- **MS can contract with other GCC member states to obtain fixed capacity for seasonal load;**
- **Depending on changes in demand, Iraq can purchase additional energy if needed via bilateral contracts or the exchange**
- **The GCCIA will schedule the power transfer operations after completing the necessary checks.**
- **The control center will follow up on energy transfer operations according to the approved schedules in coordination between the energy exporting country and the importing country.**

GEMS Manual 5.1

Contract Registration

Contract Registration

- * The purpose of the Contract Registration is to allocate IRO and issue the VTN with the consent of the Importing Member State and the Exporting Member State.
- * The Contract Registration is typically used by the Member States who have already entered into a Bilateral Contract between them.
- * Finalization of the Contract Registration will lead to issuance of Valid Trade Notification (VTN) for scheduling of such traded energy.

The screenshot displays the GEMS Energy Exchange Market interface. The top navigation bar includes the GEMS logo and the text "Energy Exchange Market". A user profile section shows the name "Ehsan Sharief", member state "GCCIA", email "sumaiyaent@gmail.com", and phone "0542283295". The current time and account details are also visible.

The "Market Outlook" section features three colored boxes: a red box for "Contract Registration" (labeled "4"), an orange box for "Kind: 1 | Cash: 1" (labeled "Off-Session Market"), and a green box for "Kind: 2 | Cash: 8" (labeled "Bilateral Market"). Each box has a "More info" link.

The "Market Info" table lists various market transactions:

OFFER NO	MARKET	TYPE	OFFER DATE	ORDER
BN-200609002-R01	Bilateral Market	In-Kind	09-Jun-2020	0
BN-200609001	Bilateral Market	In-Cash	09-Jun-2020	0
OS-200521008-R02	Off-Session	In-Kind	21-May-2020	1
OS-200521007-R01	Off-Session	In-Cash	21-May-2020	1
BN-200602001-R01	Bilateral Market	In-Cash	02-Jun-2020	0
BN-200521009-R01	Bilateral Market	In-Cash	21-May-2020	0

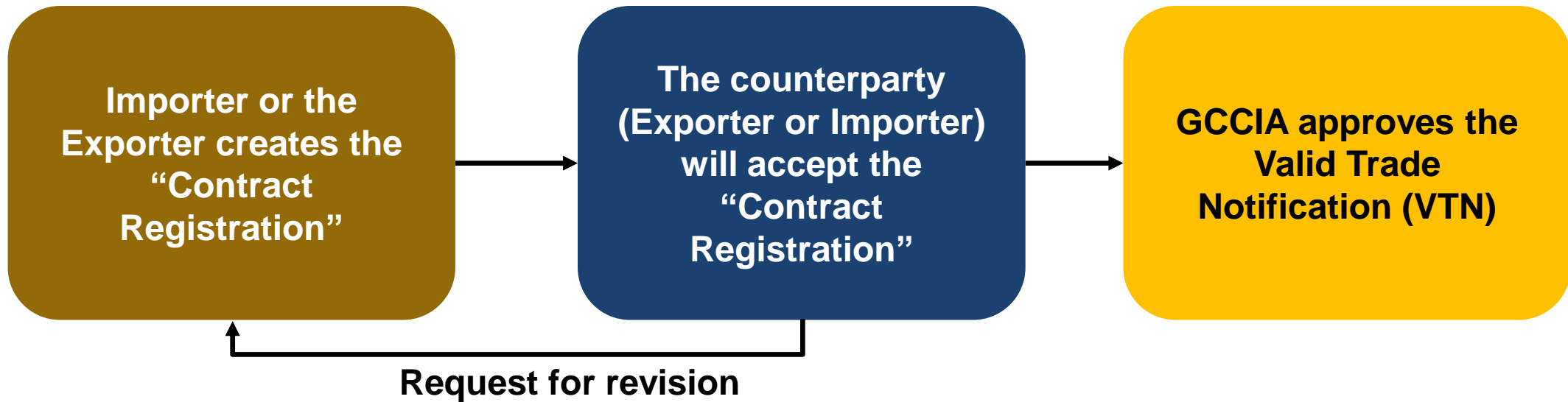
The "Trade Info (Total Traded Volume 9216 MWh)" table shows the following data:

OFFER NO	MARKET	TYPE	OFFER DATE	ENERGY (MWh)
BN-200521004	Bilateral Market	In-Cash	21-May-2020	360
BC-200522001	Contract Reg	Bilateral	22-May-2020	8856

The "Action Items" section contains three sub-sections:

- My Offers:** A table with columns "OFFER NO" and "ORDERS". It shows two rows: "BN-200609002-R01" with 0 orders and "BN-200609001" with 0 orders.
- My Response To Offers:** A table with columns "OFFERNO" and "ACTION". It shows one row: "BN-200521003" with the action "Accept".
- My Trades:** A table with columns "OFFER NO", "DATE", and "ENERGY (MWh)". It is currently empty.

Contract Registration - Overview



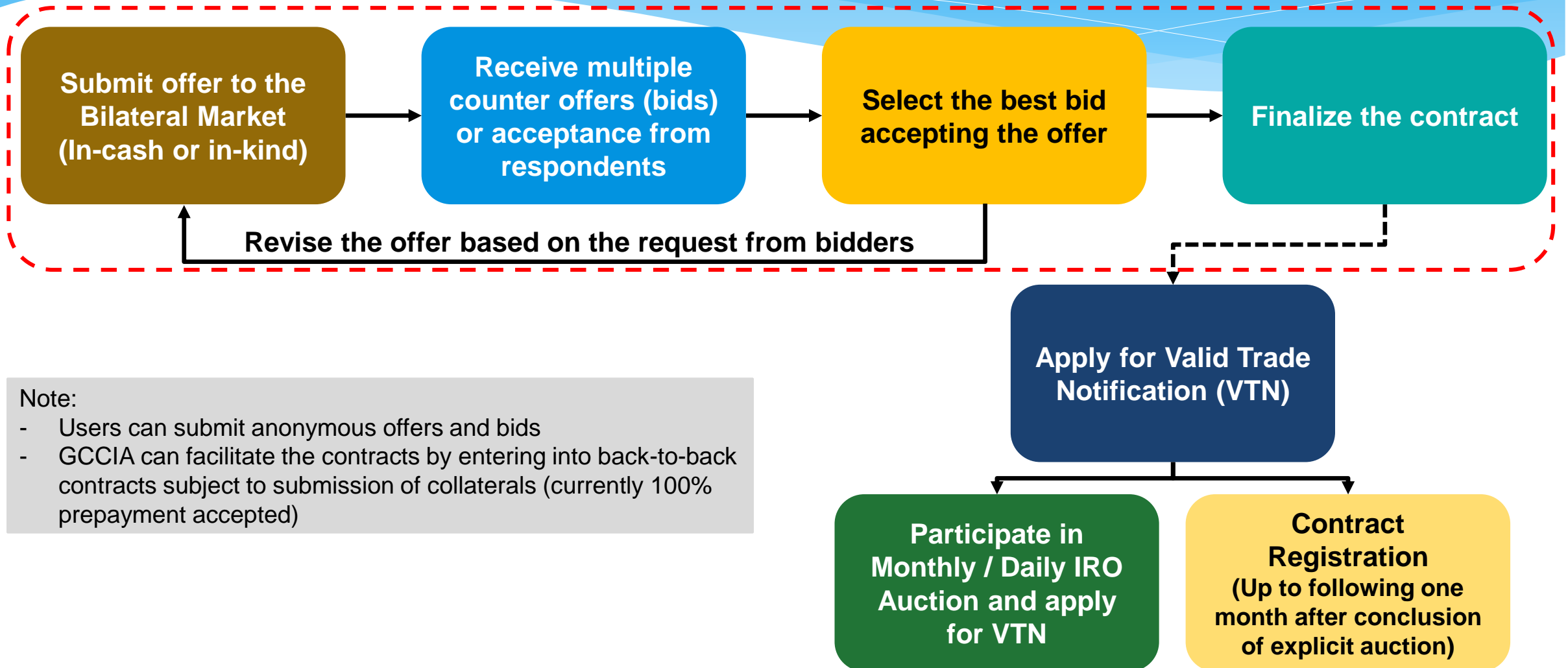
Note:

- The pre-requisite for the Contract Registration is to have the Importer and the Exporter enter into a Bilateral Contract

GEMS Manual 5.1

Bilateral Market

Bilateral Market - Overview



Dashboard



Energy Exchange Market



MAIN

- Home
- Available NTC

MARKETS

- IRO Auction
- Contract Registration
- Off Session Market
- Dayahead Market
- Bilateral Market**

ADMIN

- User Settings
- Register New User
- Settlements & Invoice
- Market Settings
- NTC/ATC
- VTN Approval/Issuance

Name: Ehsan Sharief
Member State: GCCIA

Email: sumaiyaomfs@gmail.com
Phone: 0542283295

Current Time:
Account #:
Account Type:

Market Outlook

4

Contract Registration

[More info](#)

Kind: 1 | Cash: 1

Off-Session Market

[More info](#)

Kind: 2 | Cash: 8

Bilateral Market

[More info](#)

Market Info

OFFER NO	MARKET	TYPE	OFFER DATE	ORDER
BN-200609002-R01	Bilateral Market	In-Kind	09-Jun-2020	0
BN-200609001	Bilateral Market	In-Cash	09-Jun-2020	0
OS-200521008-R02	Off-Session	In-Kind	21-May-2020	1
OS-200521007-R01	Off-Session	In-Cash	21-May-2020	1
BN-200602001-R01	Bilateral Market	In-Cash	02-Jun-2020	0
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Trade Info (Total Traded Volume 9216 MWh)

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Action Items

My Offers

OFFER NO	ORDERS
BN-200609002-R01	0
BN-200609001	0

My Response To Offers

OFFERNO	ACTION
BN-200521003	Accept


My Trades

OFFER NO	DATE	ENERGY (MWH)


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Continuous Hourly Market

Continuous Market - Summary



هيئة الربط الكهربائي لدول مجلس التعاون لدول الخليج العربية
GCC INTERCONNECTION AUTHORITY



السوق الخليجية لتداول الطاقة الكهربائية
GCC Power Exchange

userid: 2040 Name: Ehsan Sharief MS: BAH Market Status: OPEN 2:29:09 PM [logout](#)

New Bid ReloadGrid 11/24/2018

BAH ATC: 07-Nov-2018 DP: 17 KUW: 468 MW

Order Book

Day	DP	SellQ (MW)	SellP (\$)	BuyQ (MW)	BuyP (\$)	TradeQ (MW)	TradeP (\$)
24-Nov	1			100	46.00	-100	45.00
24-Nov	2			100	46.00	-100	45.00
24-Nov	3			100	46.00	-100	45.00
24-Nov	4			100	46.00	-100	45.00
24-Nov	5			100	44.00	-90	44.00
24-Nov	5			10	44.00		Sell Buy
24-Nov	6			100	45.00	-100	45.00
24-Nov	6			100	51.00	-100	50.00
24-Nov	7	100	55.00			100	55.00
24-Nov	8	100	52.00			100	52.00
24-Nov	9			100	50.00	-100	50.00
24-Nov	10						Sell Buy
24-Nov	11						Sell Buy
24-Nov	12						Sell Buy
24-Nov	13						Sell Buy
24-Nov	14						Sell Buy
24-Nov	15						Sell Buy
24-Nov	16						Sell Buy
24-Nov	17						Sell Buy
24-Nov	18						Sell Buy
24-Nov	19						Sell Buy
24-Nov	20						Sell Buy
24-Nov	21						Sell Buy
24-Nov	22						Sell Buy
24-Nov	23						Sell Buy
24-Nov	24						Sell Buy

Market Information

Day	DP	MSellQ (MW)	MSellP (\$)	MBuyQ (MW)	MBuyP (\$)
24-Nov	5	100	45.00	0	0.00
24-Nov	5	0	0.00	10	44.00

Trade Information

Day	DP	TradeQ	TradeP	HighP	LowP
24-Nov	1	100	45.00	46.00	46.00
24-Nov	2	100	45.00	46.00	46.00
24-Nov	3	100	45.00	46.00	46.00
24-Nov	4	100	45.00	46.00	46.00
24-Nov	5	90	44.00	44.00	44.00
24-Nov	6	100	45.00	51.00	45.00
24-Nov	6	100	50.00	51.00	45.00
24-Nov	7	100	55.00	56.00	56.00
24-Nov	8	100	52.00	52.00	52.00
24-Nov	9	100	50.00	50.00	50.00

To submit bid for multiple DPs

Cleared bids by the user

Un-cleared bid by the user

Un-cleared bid by some anonymous user

Un-cleared bid by the user

Cleared bid of all the users

GCC-PEX ACCESS CONTROL

USER NAME

PASSWORD

LOG IN

Edit Order: SELL

Date: 2018-11-20

From DP: 1

To DP: 1

Qty (MW):

Price (\$):

Confirm Bid
Cancel

Settlement Report

- * At the end of each day, the users participating on the exchange will get the Settlement Report.
- * The Settlement Report contains the details of each trade transaction conducted by the user and for each transaction, the DP, quantity and price.
- * The Settlement Reports will form the basis for the issuing Invoices to the Member States

Gulf Cooperation Council Interconnection Authority
P.O. Box 3894, Dammam 31481, Kingdom of Saudi Arabia,
Tel: +966 13 821 4202 Fax: +966 13 821 1766



Issued To: KSA

Date:	2018-10-21
Statement Number:	IDM-KSA-10212018
Delivery Date:	2018-10-22

SETTLEMENT STATEMENT

Transaction	DP	Type	Price (\$)	QTY (MWH)	Trade Value	Trade Fee	IRO Charges
1810171701-2	17	Sell	\$55.00	100	(\$5,500.00)	0	0
1810171801-2	18	Sell	\$55.00	100	(\$5,500.00)	0	0
1810171901-2	19	Sell	\$55.00	100	(\$5,500.00)	0	0
1810172001-2	20	Sell	\$55.00	100	(\$5,500.00)	0	0
1810172101-2	21	Sell	\$55.00	100	(\$5,500.00)	0	0
1810172201-2	22	Sell	\$55.00	100	(\$5,500.00)	0	0
1810172301-2	23	Sell	\$55.00	100	(\$5,500.00)	0	0
1810172401-2	24	Sell	\$55.00	100	(\$5,500.00)	0	0

Total:

Demonstrations of Trading Platform





السوق الخليجية لتداول الطاقة الكهربائية
GCC Power Exchange

GCC Interconnection Authority
www.gccia.com.sa