Long-Term Electric Auctions

June 27, 2019

BRAVOS

Agenda

Section 1 Objectives of the Auction

Section 2 Participating Entities

Section 3 Design of the Long-Term Electric Auctions

Section 4 Payments and Collaterals Administration

Section 5 Process and Schedule

Section 6 Preliminary Requirements

Section 7 Auction Platform

Section 8 Conclusions

Section 1

Objectives of the Auction

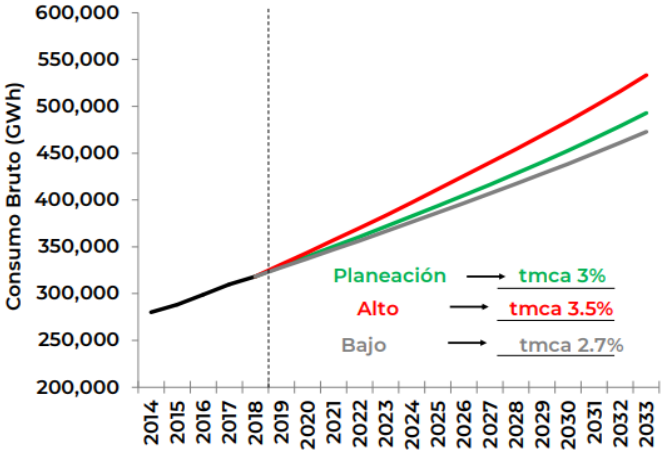
DEMAND FOR NEW PROJECTS: PRIVATE BUYERS

Estimated New Generation 2019 -2029*

Technology	MW to install	Investment (MM USD)
Wind	9,299	13,298
Solar	14,212	16,628
Gas turbine	1,139	926
Combined cycle	19,963	19,464
Hydroelectric	2,922	6,165
Cogeneration	2,382	5,645
Coal	129	130
Internal combustion	270	802
Others	114	282
Total	**50,430**	**63,340**

*Source: PRODESEN 2019-2033

SEN forecast of gross consumption 2019- 2033*



Scenario	Low	Plan	High
CAGR	2.7%	3%	3.5%
↓ Average growth in the next 3 years	9,588 GWh/year	9,924 GWh/year	10,484 GWh/year
↓ ~ 1/3 it is qualifiable	3,196 GWh/year	3,308 GWh/year	3,495 GWh/year

In the fourth CENACE Auction there were **2,006 GWh/year** of purchase bids from qualified suppliers

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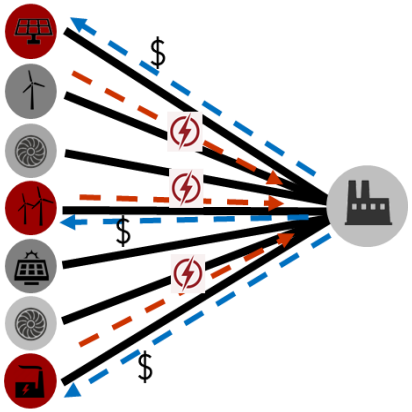
The Electric Auctions Meet the Needs of Qualified Users

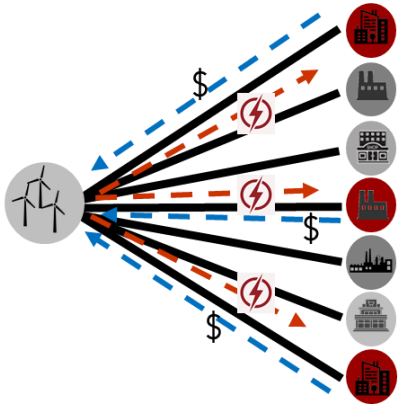
	CENACE Auctions	Long Term Electric Auctions
Term	15 years for Energy and Power, 20 years for CELs.	Flexible Terms: 5, 10 or 15 years.
Congestion	Buyer absorbs costs and congestion risks.	Energy Products differentiated by node and delivery point.
Renewable Generation Deviations	Buyer absorbs costs and deviation risks.	New product, energy balancing, reduces exposure to spot market prices.
Counterparty Credit Management	No clearing house; simplified guaranties requirements.	Payments and collateral administrator; active management of guarantees.
Product Portfolio	Each participant must buy the same product as the “Basic Supplier”, and in the same proportions.	Each participant chooses the prices and the products it desires to bid for.

Individual Processes are not a Complete solution

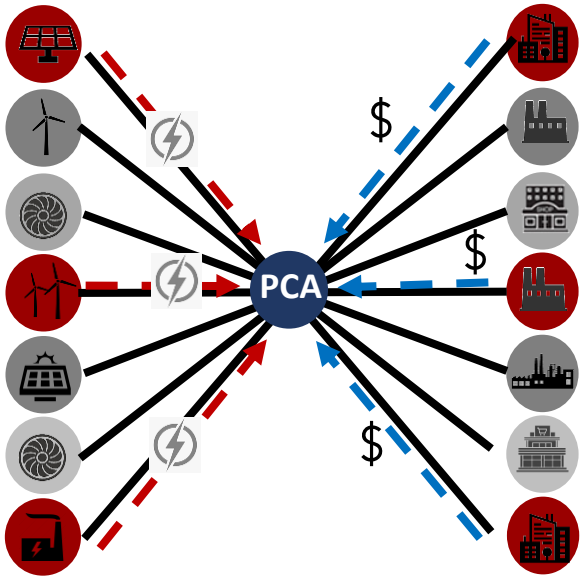
Multiple generators to one user



One generator to multiple users



Multiple generators to multiple users



	Individual Processes	Long Term Electric Auctions
Price	Result of bilateral negotiation or a bidding with limited competition	Lower prices due to wider participation
Size of contracts	Most buyers do not have enough demand to anchor a project with efficient scale	Different buyers' demand is aggregated to anchor larger projects; the minimum bid size is smaller
Diversification	Development and generation in a single plant per buyer	Diversification of projects, location and technology
Credit Risk	1 to 1	Diversified and managed

Section 2

Participating Companies

Companies Participating in the Operation of the Auction

Bravos	BRAVOS	▪ Design and coordination of the Auction ▪ Financial Evaluation of Buyers and Sellers ▪ Hedging contract operation management
Aklara	aklara COMPRAS TRANSPARENTES	▪ Auction Platform
Tremond Energy	TREMONDENERGY	▪ Development and implementation of optimization model ▪ Technical Evaluation of Buyers and Sellers ▪ Technical Training
Essentia Advisors		▪ Procedural Training
Solcargo	SOLCARGO SOLÓRZANO·CARVAJAL·GONZÁLEZ·PÉREZ-CORREA	▪ Elaboration of the Hedging contract Model ▪ Legal Evaluation of Buyers and Sellers
Ratings Agencies	*Diverse Agencies*	▪ Buyers' credit rating

Auction Participant Types

Buyers

- Qualified Retailers
- Retailers of Last Resort
- Market Participant Qualified Users
- Non Market Participant Qualified Users

Vendors

- Generators with clean intermittent sources
- Generators with clean firm sources
- Generators with conventional intermittent sources
- Generators with conventional firm sources
- Qualified Retailers
- Market Participant Qualified Users
- Other members of the Electric Industry

Since the Hedge contracts are **financially settled:**

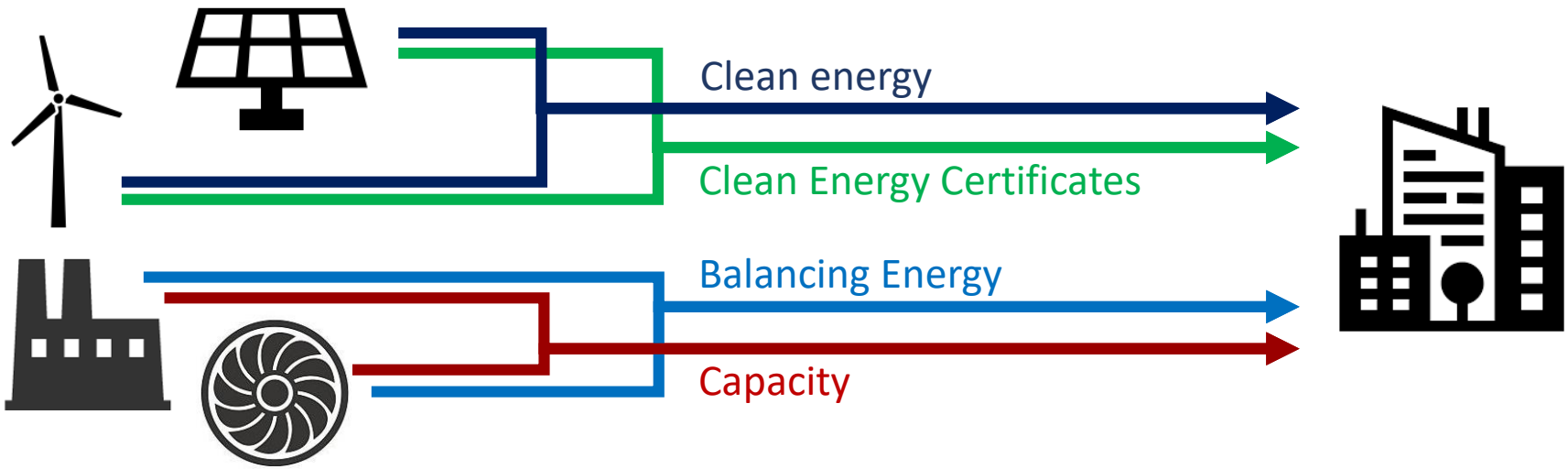
- Qualified users can obtain hedges directly, even when their loads are represented by a Retailer
- Some products can be sold without being a Market Participant

Section 3

Design of the Long-Term Electric Auction

LONG-TERM ELECTRIC AUCTION

A mechanism to assign contracts **simultaneously** to clean sources and the dispatchable sources that support them



Expected Results:

- Competitive and transparent prices
- Products that complement each other
- Standardization of Electric Balancing
- Improve the flexibility and resilience of the National Electric System
- Increase national energy autonomy

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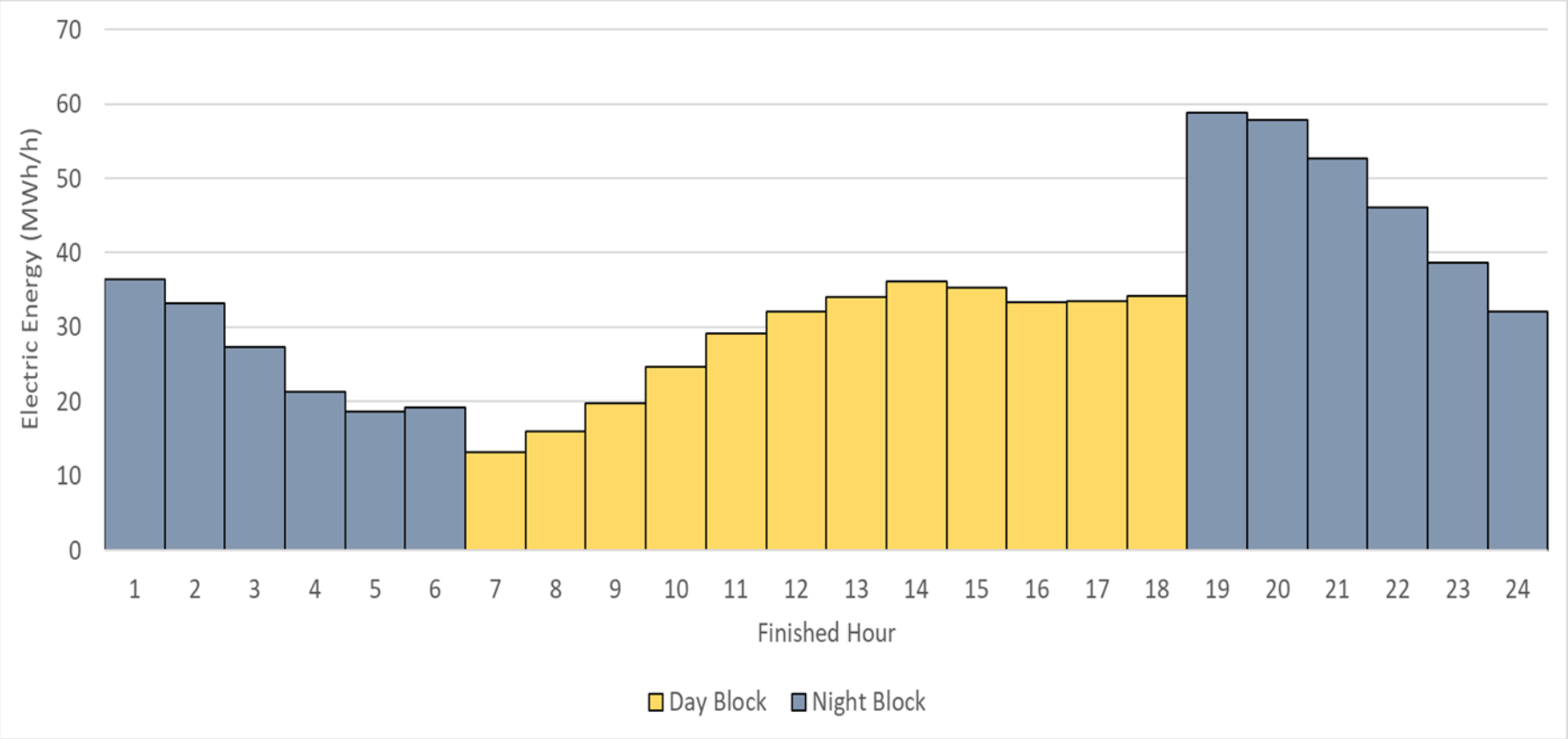
Products and Features

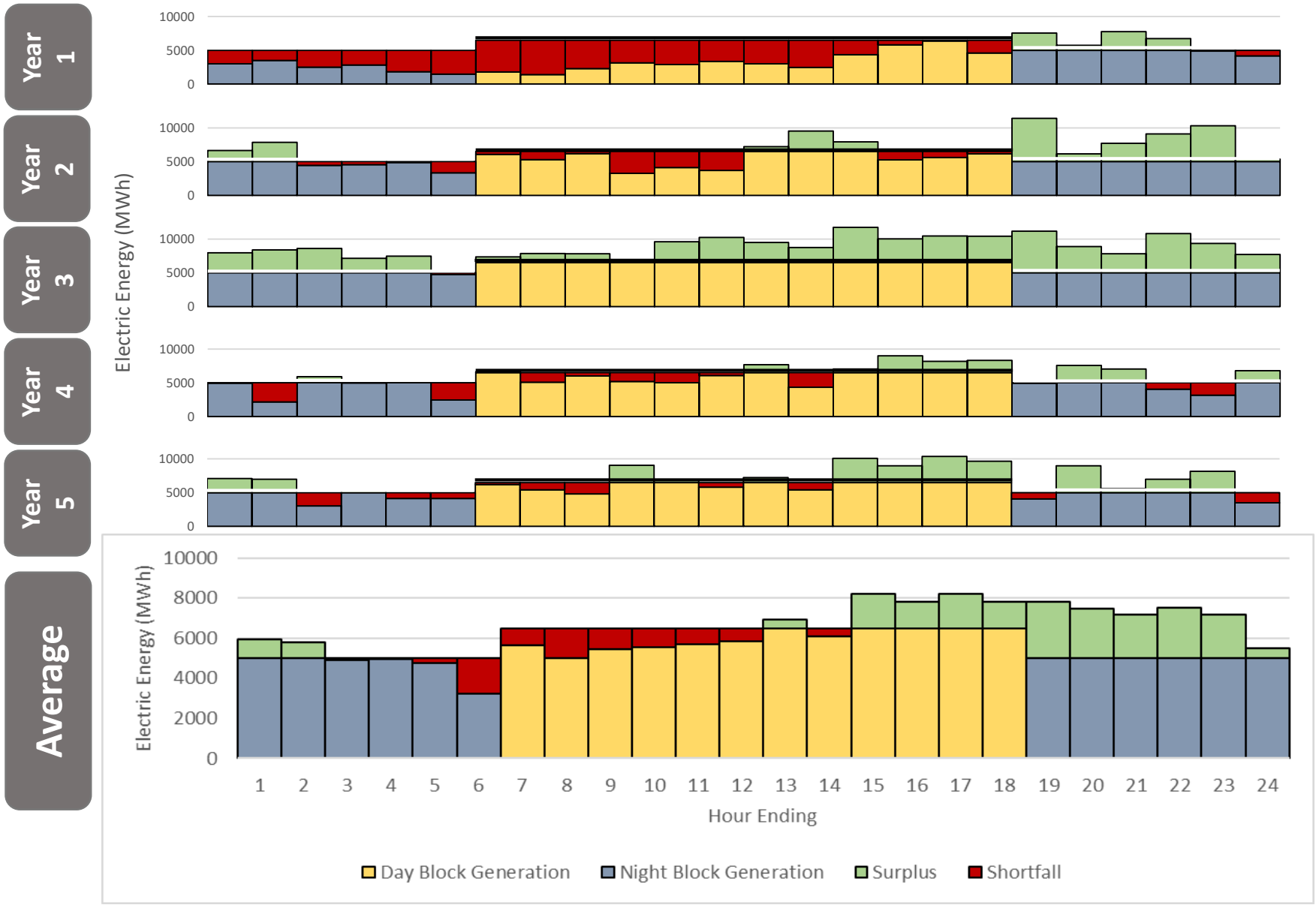
	Energy	Incremental Balancing	Decremental Balancing	Capacity	CELs
Quantity	MWh per year	MWh per hour	MWh per hour	MW-year per year	CELs per year
Offer Price	Pesos / MWh	Maximum Pesos / MW / h	Minimum, Pesos / MWh	Pesos / MW-year	Pesos / CEL
Five Year Blocks	I, II, III	I, II, III	I, II, III	I, II, III	I, II, III
Start Dates	• Early • Late • Regular	• Standard	• Standard	• Early • Late • Regular	• Early • Late • Regular
Delivery Point	Aggregate Load Zone / Plant Node	Aggregate Load Zone	Aggregate Load Zone	Capacity Zone	-
Block Hours	Day / Night	Day / Night	Day / Night	-	-
Balancing Type	-	"Firm" or “unit contingent"	-	-	-

Hour Blocks for Clean Energy

Block	Hours
Day	**HE7 - HE18**
Night	**HE1 - HE6 & HE19 - HE24**



Five Year Accumulation



Tolerance bands for Clean Energy

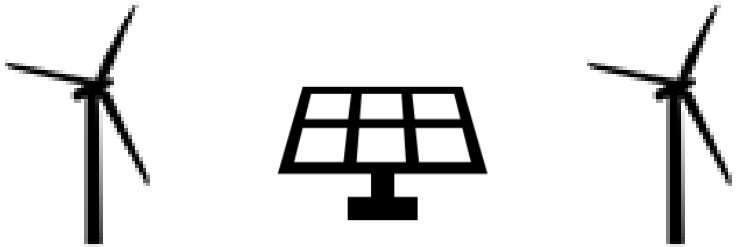
Objective: To ensure realistic offers for sale

- Periodic penalty payments do not include penalties for deviation
- The deviation between the contracted and generated energy is calculated for each five-year block
- A discount is calculated based on the percentage of deviations from the power generation versus the amount committed
- The calculation of the discount is made at the **end** of the five-year block

UNDER		EXPECTED		OVER
-25%	-10%		+ 10%	+ 25%
Generator returns to the buyer 25%	Generator returns to the buyer 10%	No Adjustment	Generator returns to the buyer 10%	Generator returns to the buyer 25%

CLEAN ENERGY: CONGESTION RISK

- Each participant can offer to buy or sell hedges at different delivery points.
- The selected delivery point will depend on participants' preferences with respect to congestion risks.



		Interconnection Point Plant 1	Interconnection Point Plant 2	Interconnection Point Plant 3	Aggregated Load Zone
Sale Offers	(Plant 1)	20	-----	-----	No Offer
	(Plant 2)	-----	18	-----	36
	(Plant 3)	-----	-----	22	25

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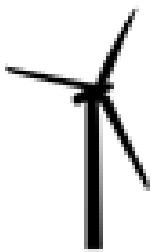
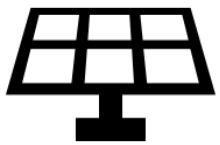
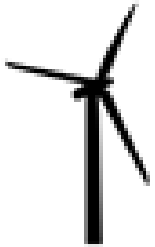

		Interconnection Point Plant 1	Interconnection Point Plant 2	Interconnection Point Plant 3	Aggregated Load Zone
Purchase offer	(User)	21	22	20	30

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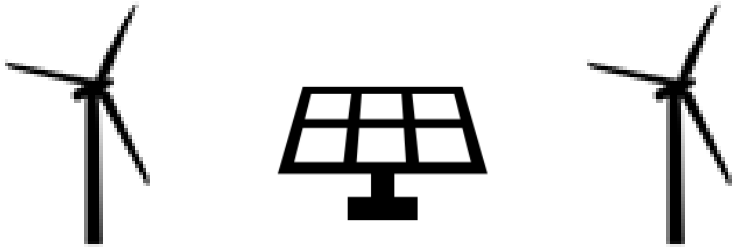

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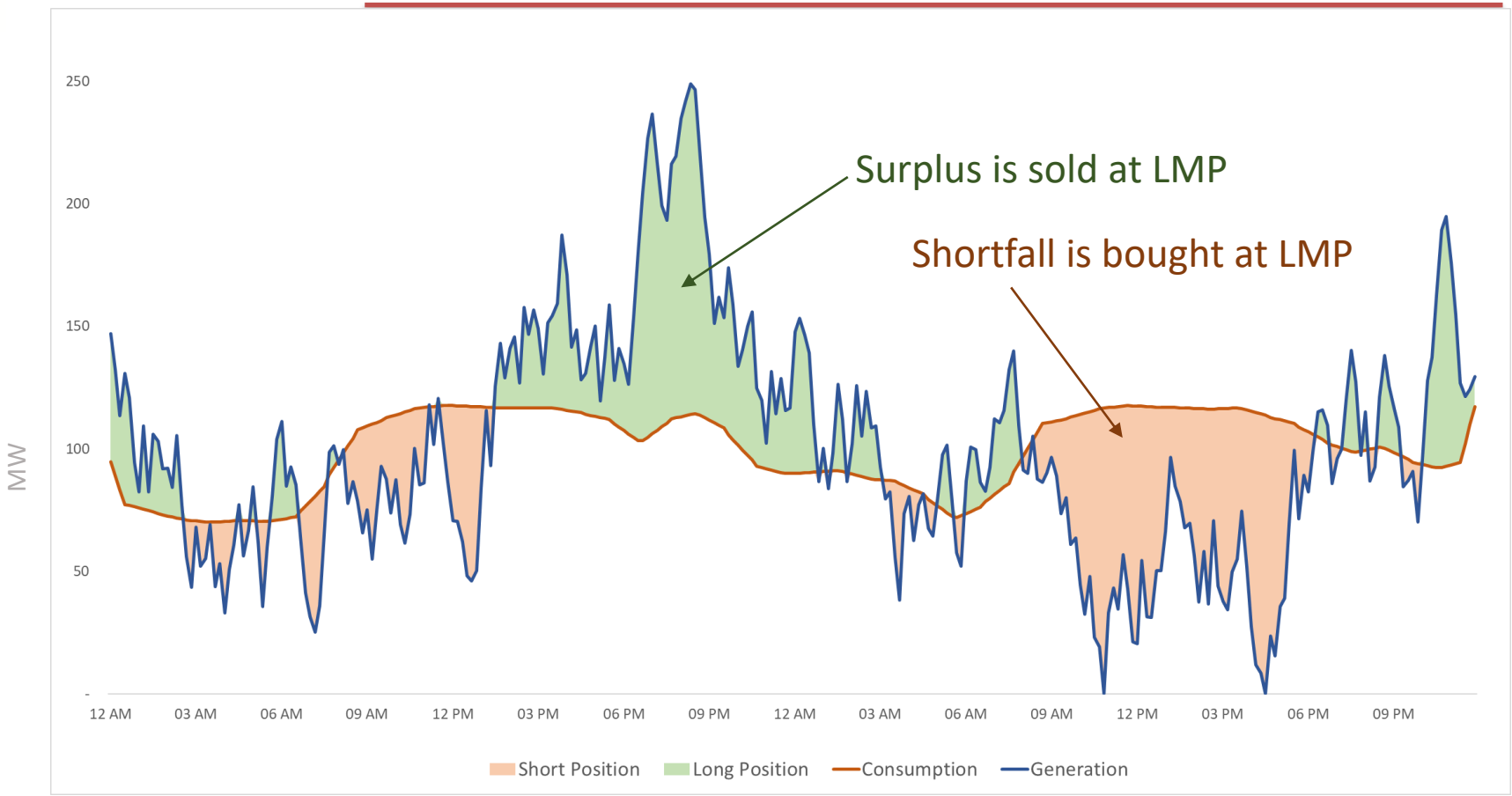
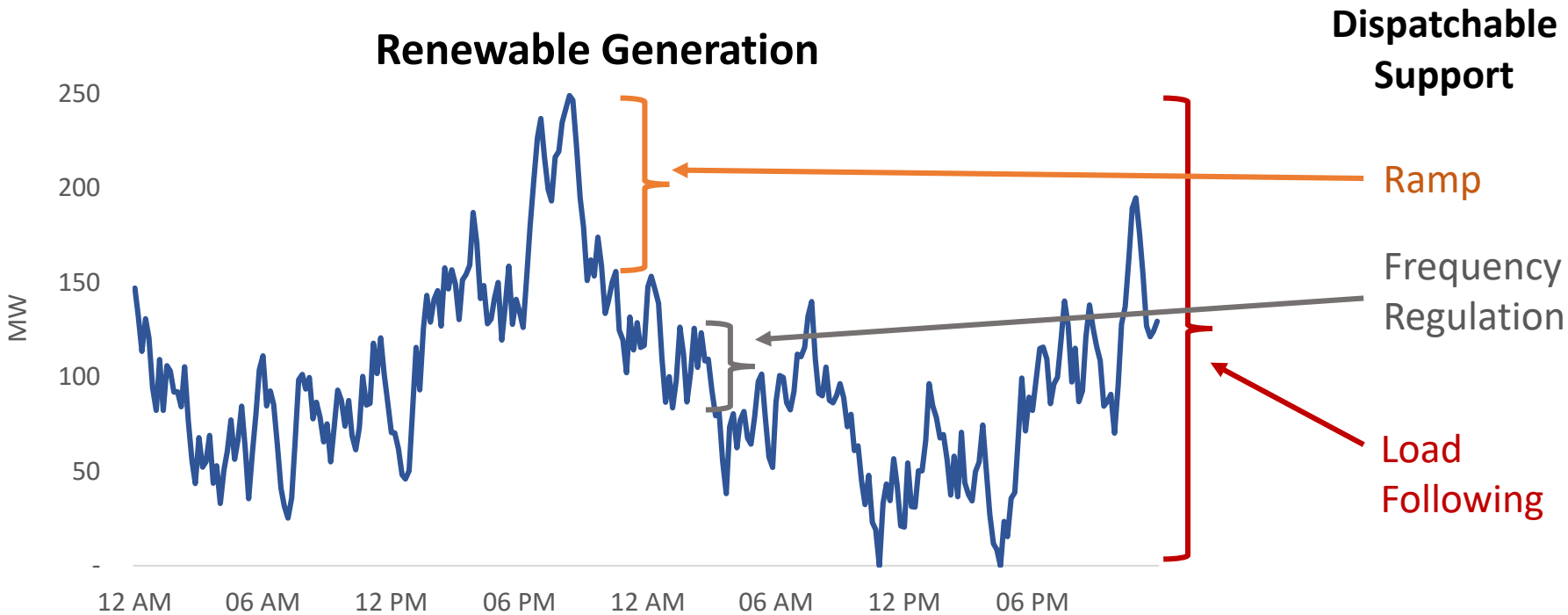
Sale Offers	(Plant 1)	20	-----	-----	No offer
	(Plant 2)	-----	18	-----	36
	(Plant 3)	-----	-----	22	25
Economic Surplus	(Plant 1)	1	-----	-----	----
	(Plant 2)	-----	4	-----	-6
	(Plant 3)	-----	-----	-2	5

Balancing Energy: Background 1
Risks for Consumers with Renewables



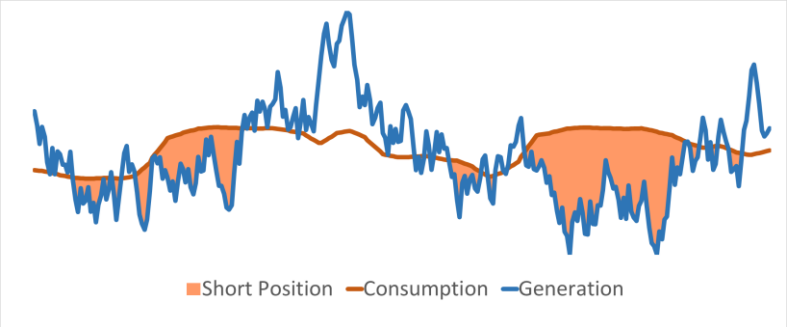
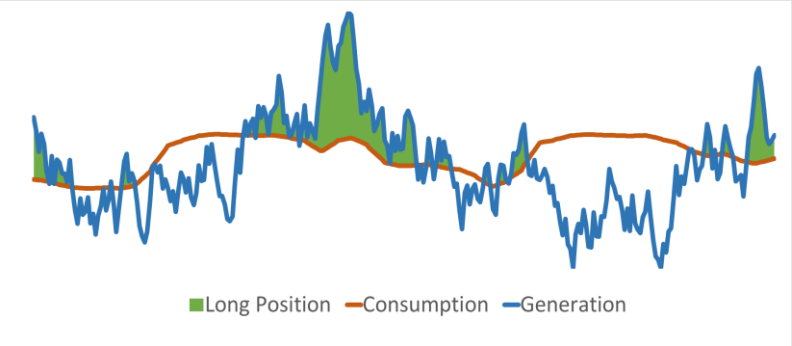
- Renewable generators and the qualified users face an important risk due to the gap between production and consumption –exposure to LMP.
- By default, the buyer takes the risk, but most suppliers and qualified users can not manage it.
- The reduction of this risk has value to the renewable generators and qualified users.

Balancing energy: Antecedent 2
System Perspective



- The variability of renewable generation requires that dispatchable plants provide balancing services
- The products of the dispatchable plants overlap and it is difficult to quantify their cost
- But there are costs that the renewable generators and users do not pay completely:
  - Connected Services: ***Some are socialized, some are not defined***
  - Start-ups: ***Socialized***
  - Energy prices: ***Volatile***
  - Fixed availability costs: ***Are not fully covered by Capacity***

Balancing Products: Definition

	Incremental Balancing	Decremental Balancing
Definition	An option to increase generation if the load consumes more than it receives from renewable generation.	Commitment to buy excess energy when the load consumes less than it receives from renewable generation.
		
Who can Sell	- Dispatchable generation units - Demand Management - Storage resources	- Retailers - Marketers - Storage resources
Price Structure	- **Fixed price**: $/MWh per hour per year - **Variable Price**: Fixed Amount plus (heat rate x fuel index)	- **Variable Price** : $ / MWh

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Two Types of Incremental Balancing

	Firm	Unit Contingent
Availability of Call Option	All hours in the corresponding block	Subject to the availability of the power plant
Fuel Cost	Index is defined by delivery point / region	Index is defined by the generator
Heat Rate	Defined in Auction Rules	Defined by the Generator
Discount based on unavailability	Does not apply	Discount to fixed cost of the contract

Products: Capacity Hedges and CELs Hedges

Capacity Hedges

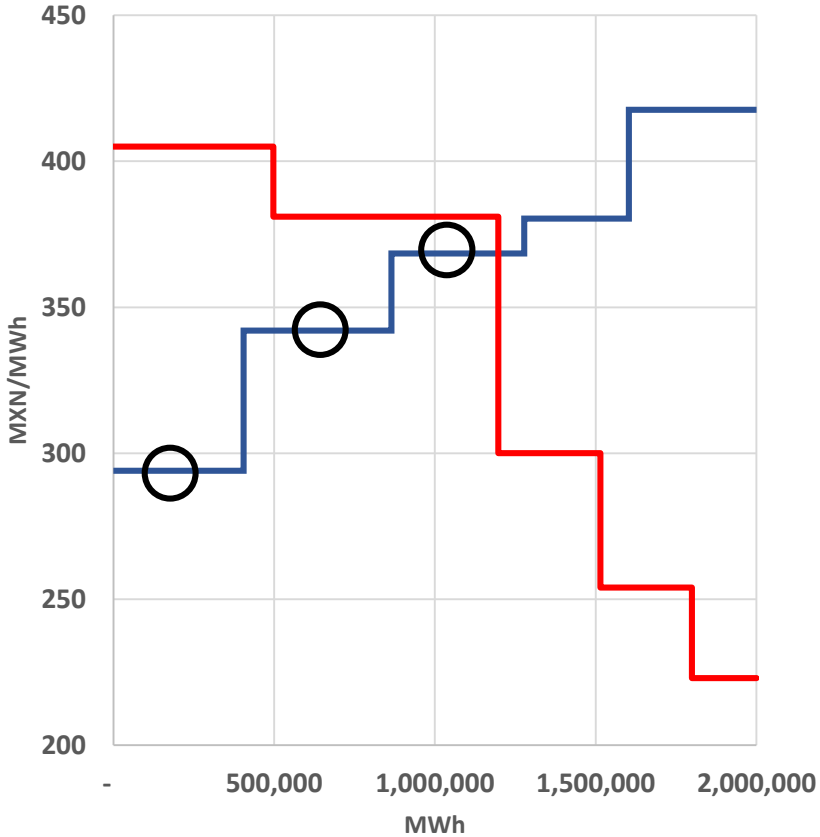
- Commitment to pay the difference between the contractual price and the net market price for Capacity. (Contract for differences)
- Differentiated by Capacity Zones and Five-Year Block.
- Delivery through Financial Capacity Schedules (TBPots) is optional

Clean Energy Certificate Hedges

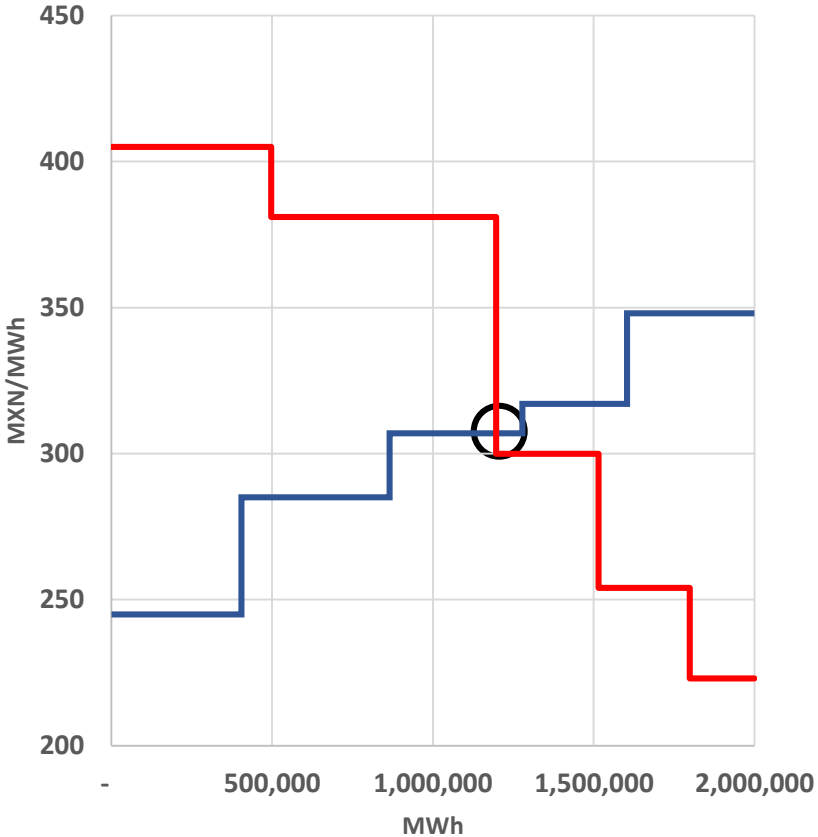
- Commitment to deliver the agreed quantity through the S-CEL platform, at the agreed price
- Differentiated only by Five Year Block
- Fulfillment of committed quantity is monitored by Five Year Block.
- Same tolerance bands (10% and 25%) as deviation for Clean Energy.

Pay as Bid vs Pay as Cleared

Pay as Bid



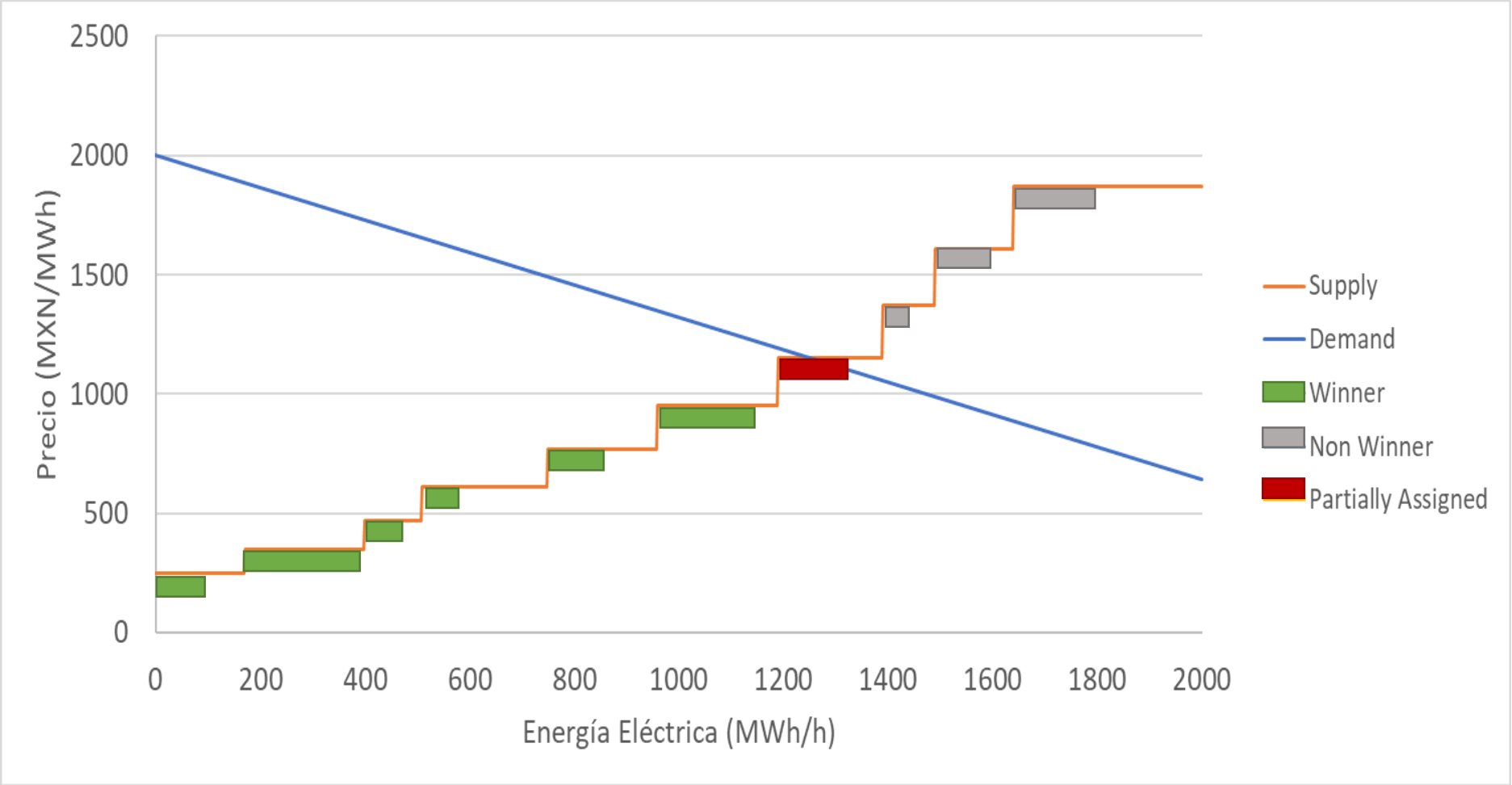
Pay as Cleared



- In a *Pay as Bid* auction, the contract price for each generator will be its offered price.

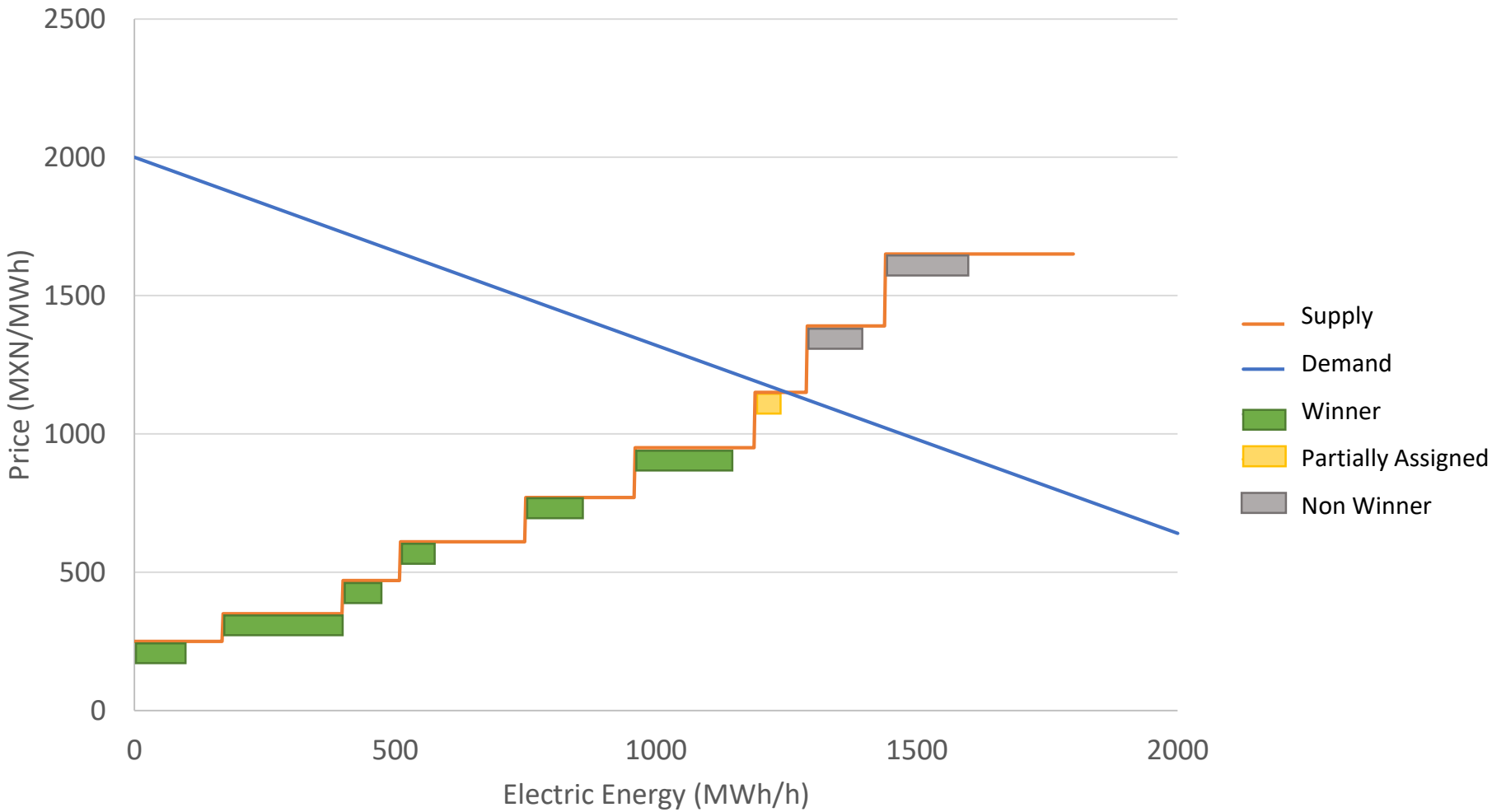
- In a *Pay as Cleared* auction, the contract price for each generator will be the equilibrium price.

Minimum Size Restriction



- The marginal sale offer does not meet the requirements of the Minimum Size Restriction
- Assignment < Minimum Requirement

Minimum size Restriction



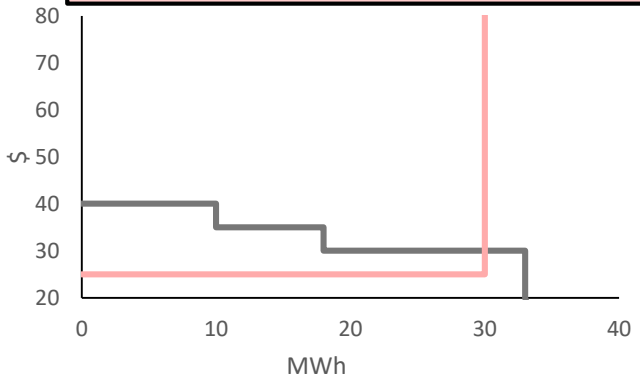
- The marginal sale offer meets the Minimum size Restriction.
- Assignment ≥ Minimum Requirement

Mutually Exclusive Offers

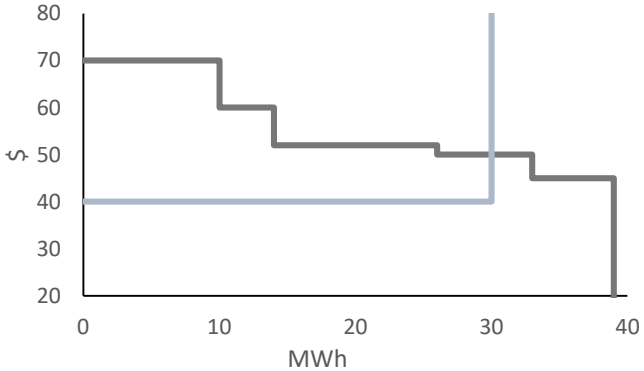
Offer	Delivery Point	Offer Price (USD/MWh)	Limit Amount (MWh)
1	Interconnection Point	25	30
2	Aggregated Load Zone	40	

Restriction:
$X_1 + X_2 \leq 30$ MWh

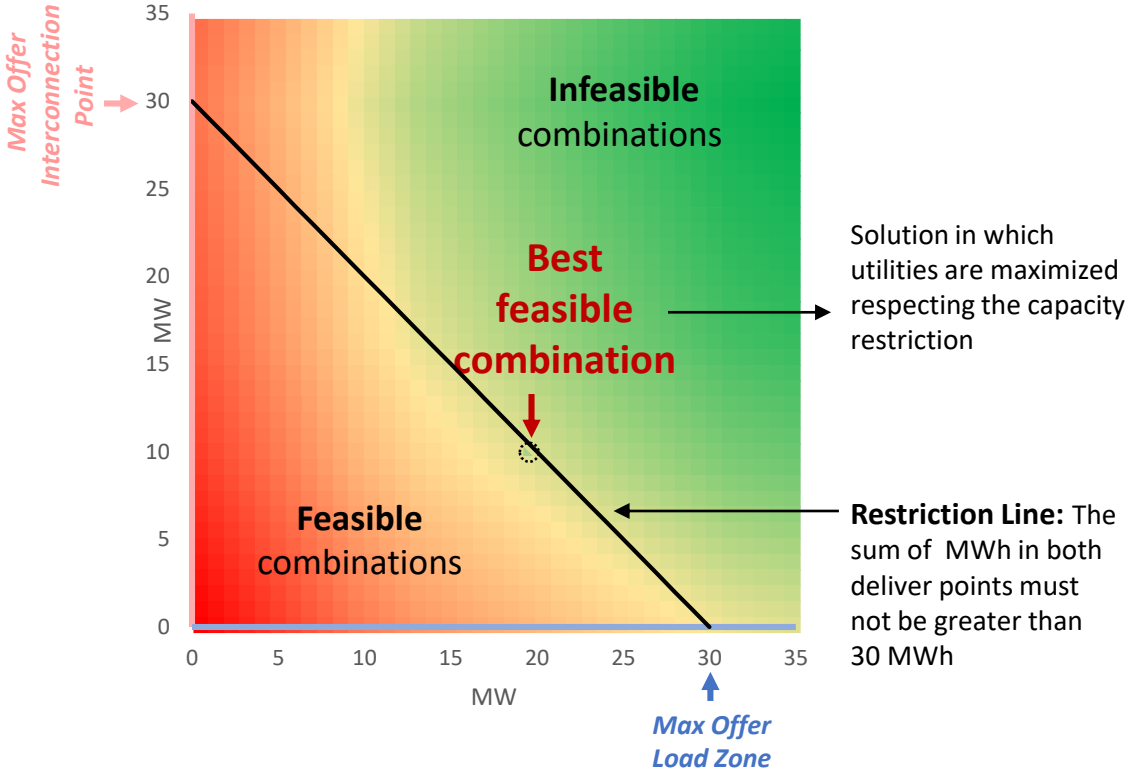
Supply and demand at an interconnection point



Supply and demand in aggregated load zone



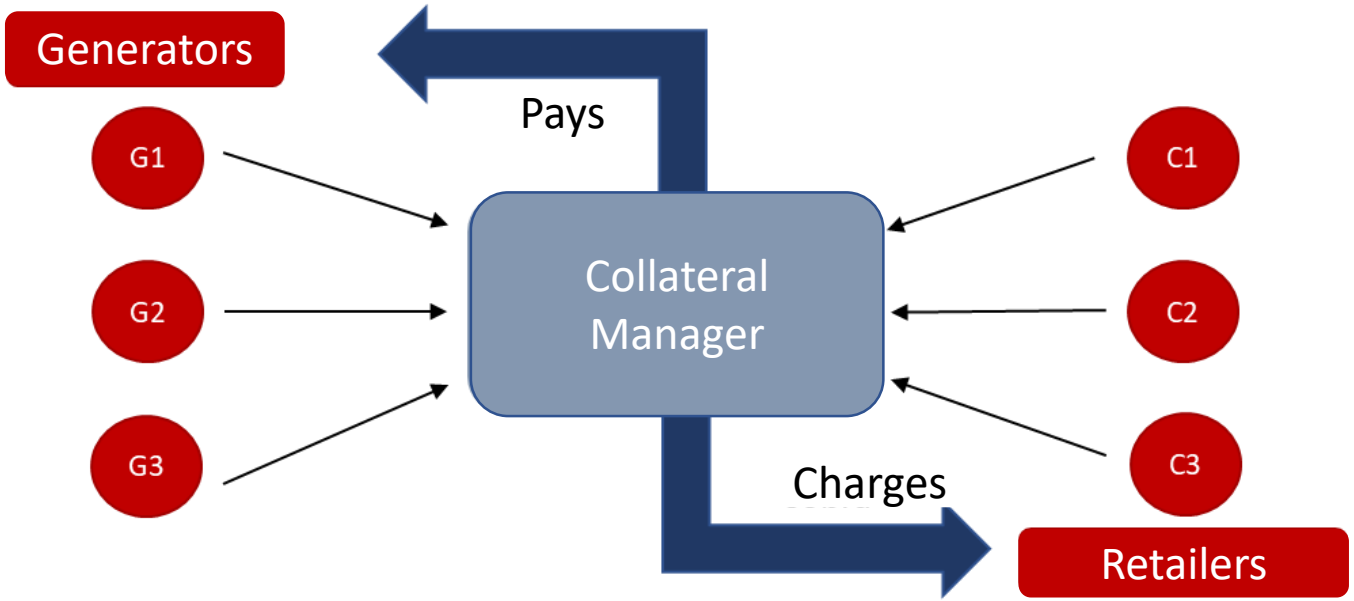
Sell combinations by Delivery Point



Section 4

Payment and Collateral Management

Payments and Collaterals Independent Management



	Independent Functions
During the Auction	• Financial Evaluation of the parties
After the contracts are signed, before operation	• Supervision and guarantee management during construction
During operation	• Contract settlement management • Risk monitoring (*Mark-to-Market*) • Protection from contract value changes through guarantee management (*Margin Call*) • Collateral management

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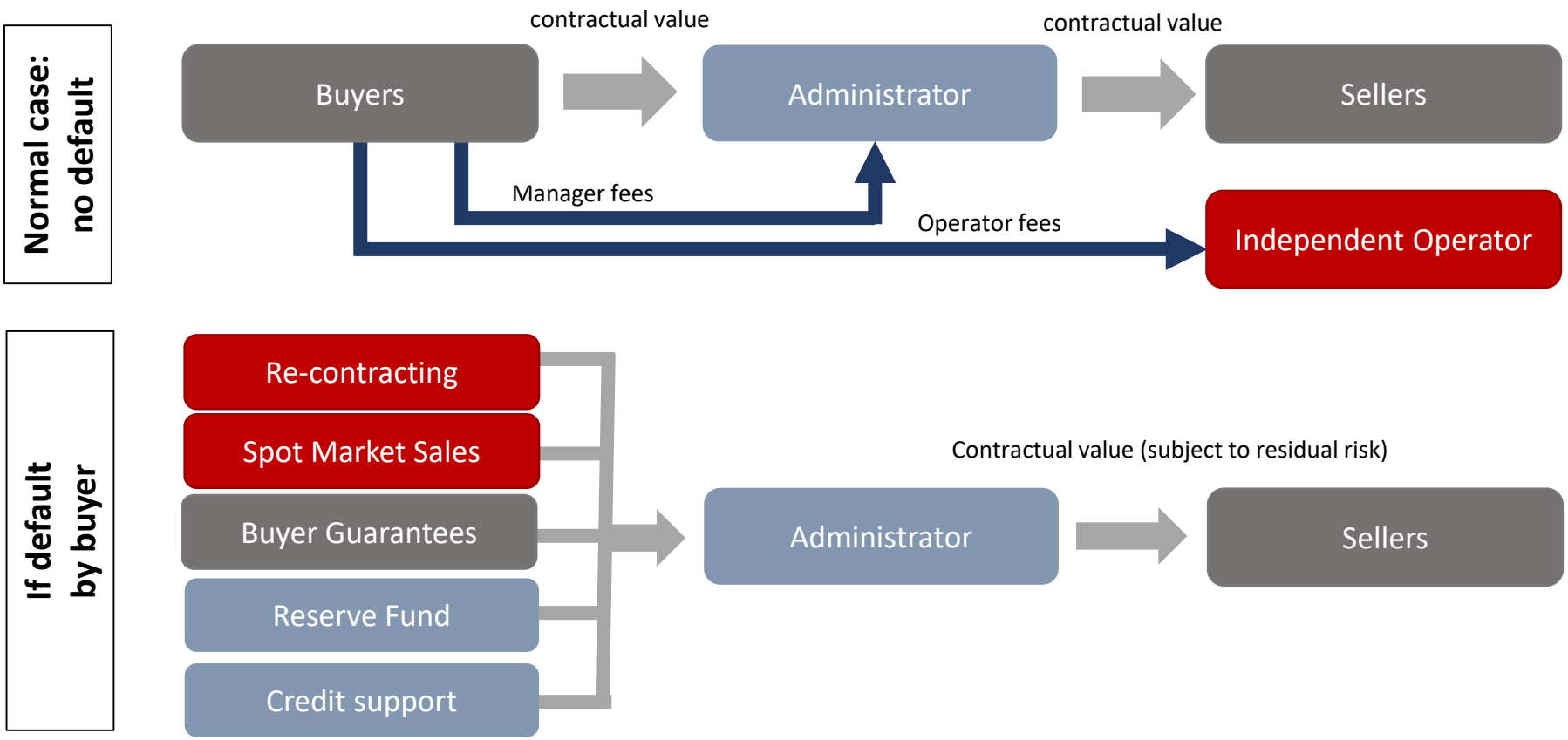
DETAILED RESPONSIBILITIES

Payment and Collateral Administrator	▪ Sign hedge contracts with buyers and sellers ▪ Pays and collects from buyers and sellers ▪ Receive, safeguard, and evaluate collateral instruments ▪ Identify and notify arrears in payments and insufficient guarantees ▪ Execute guarantees when needed ▪ Manage reserve founds and credit line
Independent Auction Operator	▪ Issue account statements that reflect the amounts payable as a function of the hedge contracts ▪ Issue invoices to buyers ▪ Validate invoices from the vendors ▪ Perform the valuation (mark-to-market) of positions in the hedge contracts ▪ Manage positions in case of contract rescission
Sellers' Technical Committee **Buyers' Technical Committee**	▪ Decide on suspension, reactivation and rescission of Contracts in case of counterparty default ▪ Establish guidelines for the operation of the Reserve Fund depending on the type of participant (buyer or vendor) ▪ Coordinate the negotiation of modifications in benefit of their type of participant (buyer or vendor)

CREDIT ENHANCEMENT TOOLS

- Credit risks are reduced through active management:
  - Active re-contracting in the case of a default
  - Preventive collateral management
  - Mandatory contributions to the Reserve Fund
  - Credit support mechanisms, to ensure liquidity



Section 5

Procedure and Schedule

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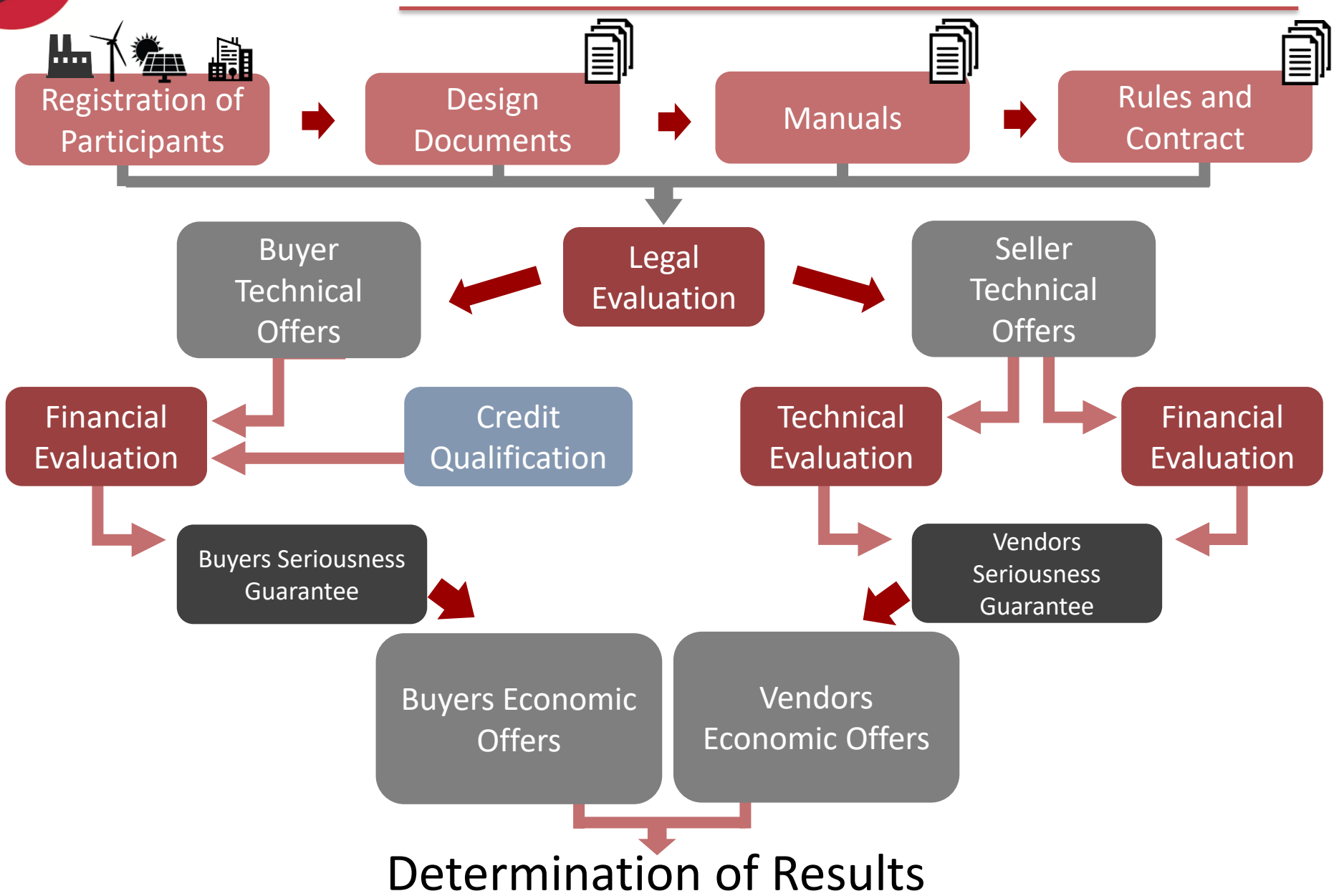
AUCTION PROCEDURE



Rule Revision Procedure

July

Orientation Sessions

Design Document

August

Manuals

September

Contract and Auction Rules

Participative feedback process

- Preliminary document is published.
- Through the auction platform, each participant sends its proposals for the design and indicates the theme priority.
- Feedback sessions will be organized by topic, the invitations will be sent to the participants who gave a greater priority to each topic.
- The document will be adjusted according to the feedback.
- The final document will be published.

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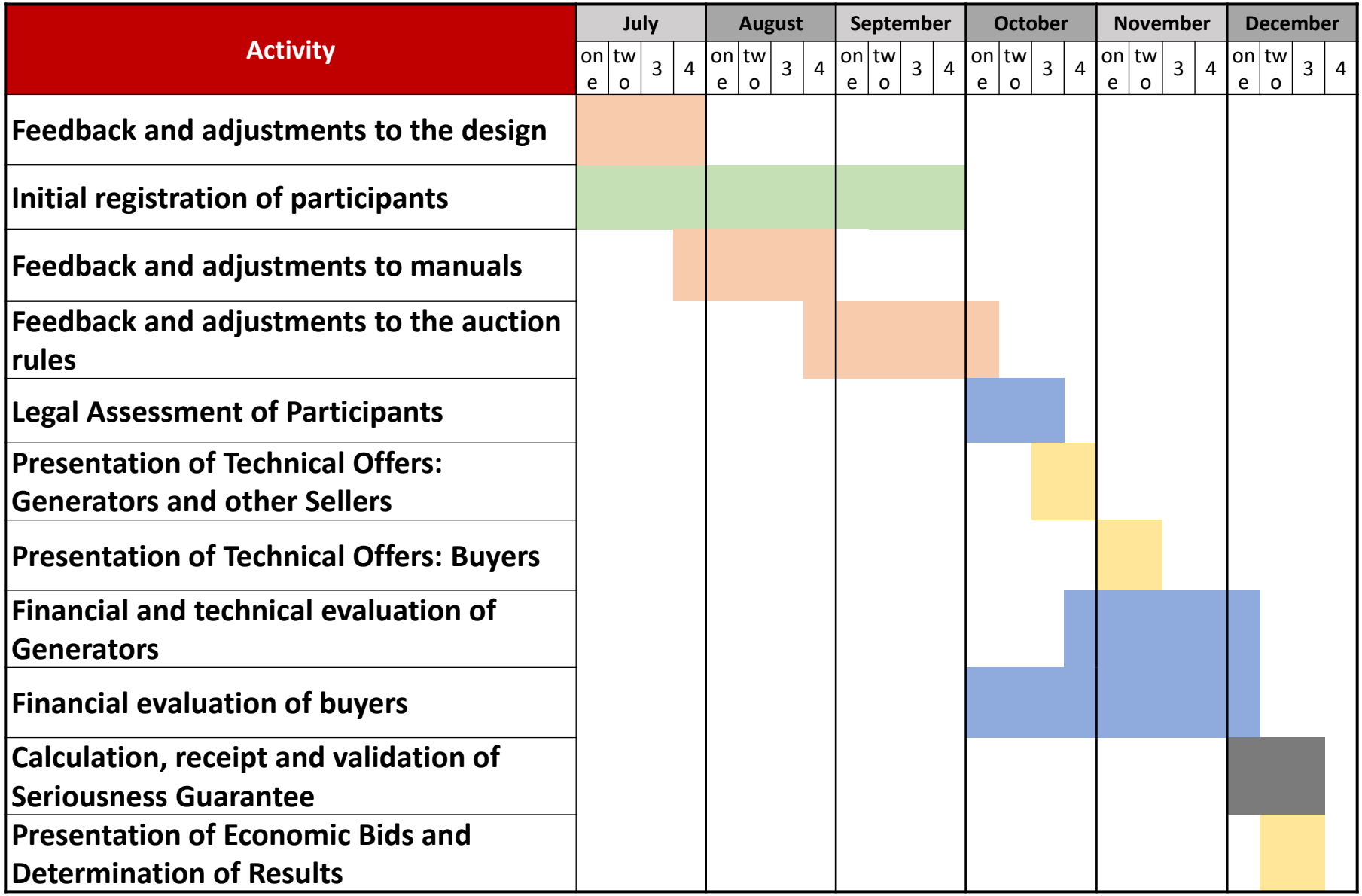
PRELIMINARY SCHEDULE



SECTION 6

PRELIMINARY REQUIREMENTS

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General Minimum Requirements

All the offers

Legal Capacity

- Legal existence and faculties of the legal representative
- Declaration and acceptance of the Auction rules
- Identification and Constitutive Act
- Others

Buy offer

Financial Capacity

- Credit qualification from rating agency approved by the Operator
- Financial statements
- Others

Sell offers

Financial Capacity

- Demonstrate the attainment of funding for previous investment projects of equal or greater size than the one which is to be developed.

Technical Capacity

- Plant technical characteristics
- Prove of the project´s feasibility:
  - Interconnection status
  - Generation permit status
  - MIA status
  - EVIS status

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BUYERS CLASSIFICATION

Buyer Type	Credit Qualification			Multiplicative factor of credit category	Limit percentage
	MOODY'S	FITCH	STANDAR & POORS		
Excellent	AAA to A1	AAA to A+	AAA to A+	0.25	100%
High Quality	A2 to Baa3	A to -BBB-	A to BBB-	1.0	50%
Acceptable	Ba1 to B1	BB+ to B-	BB+ to B-	3.0	20%
Rejected	Caa to C	CCC to D	CCC to D	na	0%

Preliminary and indicative factors: to be finished in manuals

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Technical Scores for Guarantees

- Scoring scheme will use the degree of progress of the project
- The scores for each type of process are multiplied to give the final score
- The final score of a project is used as a multiplier to determine the required amount of seriousness guarantees

		No study	Indicative study	Impact study	Facility studies	Inter-connected
Interconnection studies	HV	4	3	2	1	0.75
	MV	1.5	1.2	1	0.8	0.5

	No	Being Amended	Yes
Environmental Impact	1.25	1.1	0.9
Social Impact	1.25	1.1	0.9
Public Consultation	1.25	1.1	0.9
Permit Generation	2	1.5	0.75

- In the case of plants in operation, a final score of 0.25 is used.

Preliminary and Indicative Factors - to be finalized in manual

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PARTICIPATION COSTS

Purpose		Generators and other members	Qualified suppliers and Users
Registration, training and participatory process for feedback *	By Company	As published on the platform	No Charge
Legal evaluation, financial evaluation **	By Company	As published on the platform	
Technical evaluation, management platform supply	By Offer	As published on the platform	Does not apply
Design, coordination and operation of the contest	Selected by Amount	Depending on size of the auction / number of participants	

* Charged regardless of whether the person concerned registers before participatory feedback process
** Buyers are responsible for the cost of credit assessment

Section 7

Auction Platform

CELP201901

Query on the general design of the Auction

Concursos Eléctricos de Largo Plazo

Inicio Crear usuario Iniciar sesión

Concursos Eléctricos de Largo Plazo

Bravos Energía y aklara ® ponen a su disposición este Sitio para participar en los Concursos Eléctricos de Largo Plazo

Presentación del evento de lanzamiento del Concurso

Descargar instructivo para el uso del Sitio

Acceso al Sitio:

Usuario

Contraseña

Entrar

Recuperar contraseña

Crear usuario

Concursos Eléctricos de Largo Plazo

Concurso Cerrar sesión

Concurso: CELP201901

Descargar documentos publicados del Concurso

Participar en la consulta sobre el diseño general del concurso y de la administración de pagos y colaterales

Concursos Eléctricos de Largo Plazo

Concurso Cerrar sesión

Consulta para enviar propuestas de modificaciones

Documento

Diseño general delos Concursos Eléctricos de Largo Plazo

Tema

Requisito de garantías para compradores

Prioridad

1

Propuesta

Motivación/Justificación

Concursos Eléctricos de Largo Plazo

Concurso Cerrar sesión

Consulta para enviar propuestas de modificaciones

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Tema

Requisito c

Prioridad

1

Propuesta

Se envío correctamente la propuesta de modificación.

Motivación/Justificación

CELP201901

Registro para las sesiones de orientación

Concursos Eléctricos de Largo Plazo

Inicio | Inscripción a la sesión de orientación | Crear usuario | Inicio de sesión

Con el fin de contar con nuevos mecanismos competitivos para celebrar contratos de cobertura eléctrica, Bravos Energía y aklara® llevarán a cabo el primer concurso eléctrico de largo plazo, en el que se podrá comprar y vender Potencia, Energía Eléctrica y Certificados de Energías Limpias (CEL), así como un nuevo producto, llamado Balanceo de Energía Eléctrica, en periodos de 5, 10 y 15 años.

INSCRIPCIÓN A LA SESIÓN DE ORIENTACIÓN

Si está interesado en participar en el concurso ofertando productos (Vendedor) o comprando productos (Comprador) y tiene preguntas sobre el diseño que se presentó en el evento de lanzamiento, podrá acudir a la sesión de orientación que se llevará a cabo este **2 de julio, previa inscripción en el horario deseado**.

Solo se aceptará la inscripción de una persona por empresa.

Habrá sesiones a lo largo del 2 de julio, con cupo limitado a 40 personas cada una.

Las sesiones de orientación para los Vendedores se llevarán a cabo entre las 08:00 y las 15:00 horas, en los horarios que se muestran abajo; las sesiones de orientación para los Compradores se llevarán a cabo entre las 16:30 y las 21:00 horas, en los horarios que se muestran abajo.

De no contar con espacio en el horario seleccionado, le asignaremos un espacio en el horario disponible.

Se abrirán nuevas sesiones de orientación en función de la demanda.

Vendedor: 08:00 a 10:00, 10:30 a 12:30 y 13:00 a 15:00

Comprador: 16:30 a 18:30 y 19:00 a 21:00

El proceso de inscripción estará abierto del 27 de junio a las 15:00hrs. hasta el 1 de julio a las 15:00hrs.

Nombre de la persona que asistirá

Nombre de la empresa

Tipo de empresa (vg, Generador, Suministrador, Usuario Final, etc.)

Cargo

Teléfono celular +52 1 55 12345678

Correo electrónico

Confirmar correo electrónico

Seleccione una opción

Enviar

SECTION 8

CONCLUSIONS

BRAVOS

Auction Principles and Results

Principles

Participative Process	Transparent Operation
No Discrimination	Innovative Design
Inclusive Criteria	Imparcial Mediator

Results

- High volume
- Trust
- Diversified Product
- Bankability
- Competitive Prices
- Investment Anchor

Long-Term Electric Auctions

BRAVOS