www.doanalytics.net

DoAnalytics

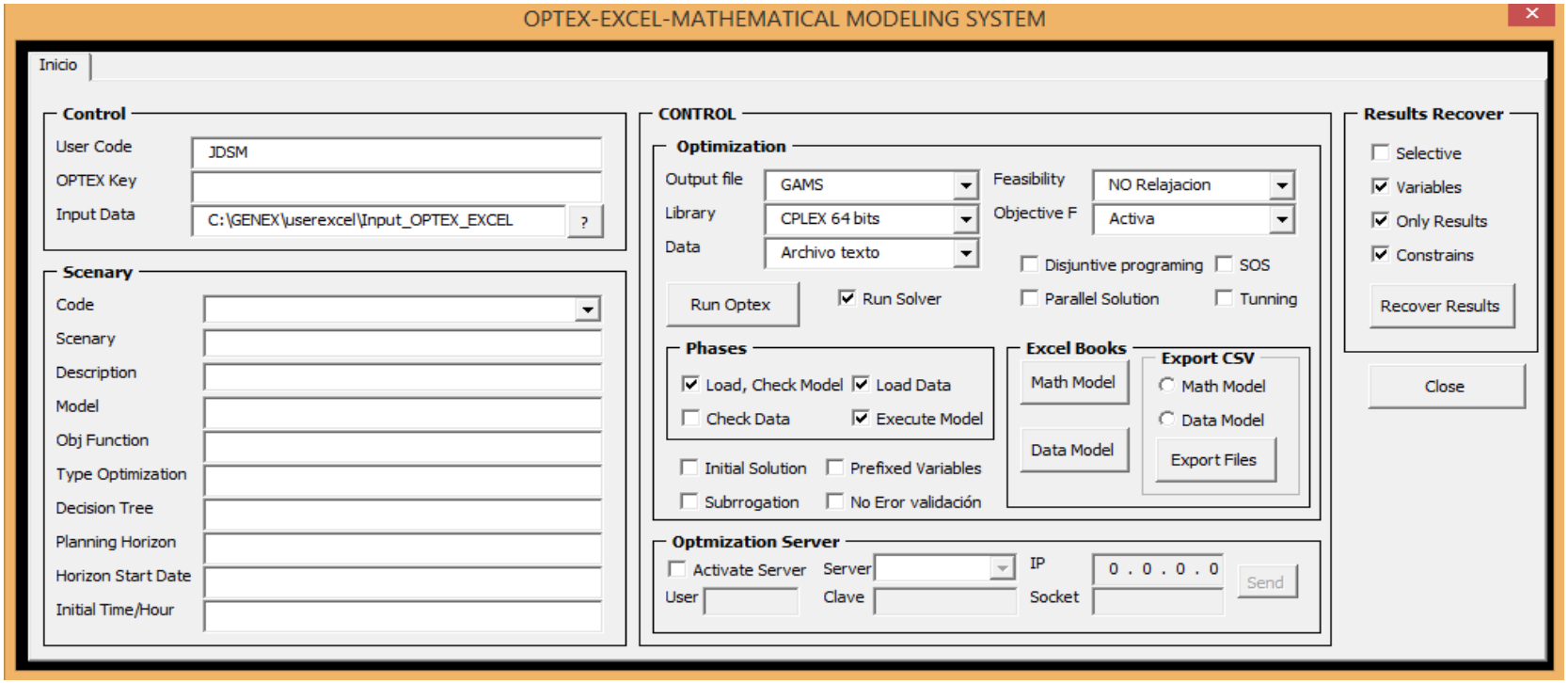
Think the model and

OPTΣX

Mathematical
Modeling System

will make the software for you

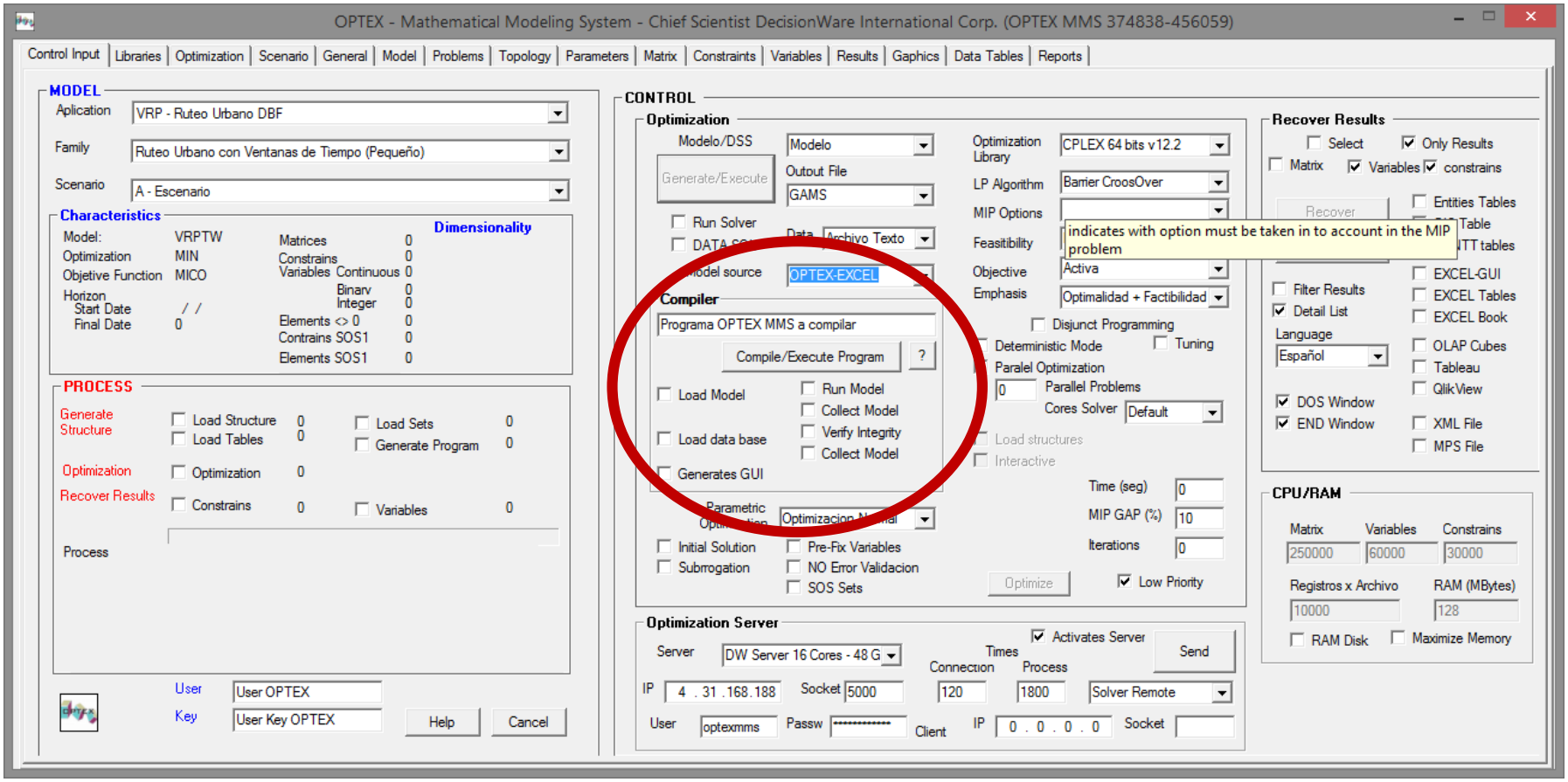
OPTEX-EXCEL-MMS



VBA APPLICATION THAT CONNECTS EXCEL WITH OPTEX

Analytics

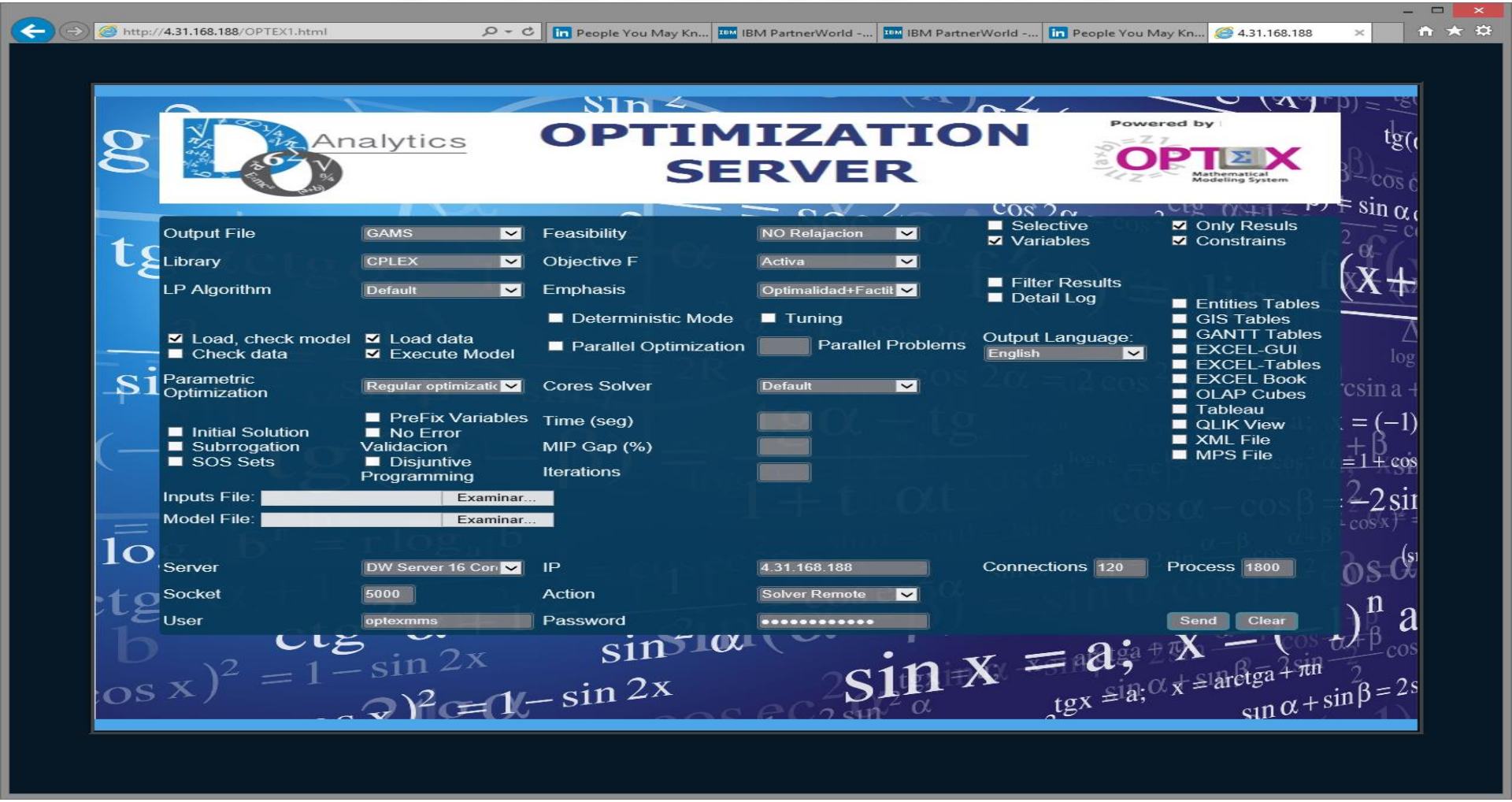
OPTEX-EXCEL-MMS



CONTROL FROM OPTEX INTERACTIVE SOLVER

Analytics

OPTEX-EXCEL-MMS



CONTROL FROM A WEB PAGE

Analytics

REAL WORLD

DECISION MAKERS

MODELERS

DEVELOPING MATHEMATICAL MODELS

ALGEBRAIC MODEL

$$Min \quad \Psi = \sum_{t=1}^{T} \sum_{i=1}^{N_t} \psi_{(i,t)}$$

s.a.

$$\psi_{(i,t)} = \frac{c_{(i,t)}}{2} \cdot P_{(i,t)}^{\ 2} + e_{(i,t)} \cdot P_{(i,t)}$$

$$V_{(j,t+1)} = V_{(j,t)} + \tau \cdot \left(A_{(j,t)} - Q_{(j,t)} - S_{(j,t)} \right)$$

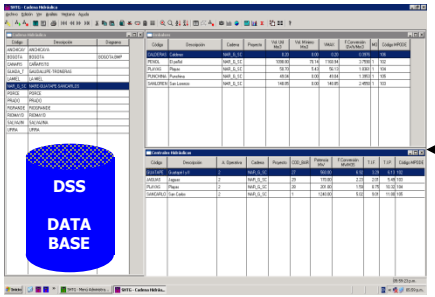
$$P_{(j,t)} = \rho_{(j)} \cdot Q_{(j,t)}$$

REAL WORLD

DECISION MAKERS

MODELERS

DATA MODEL



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PROGRAMMERS

DEVELOPING MATHEMATICAL MODELS

TRADITIONAL WAY

OPTIMIZATION TECHNOLOGY

PROGRAMMING

OPL

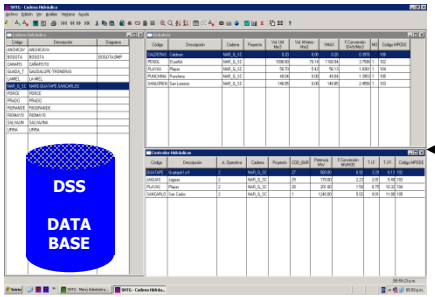
Analytics

REAL WORLD

DECISION MAKERS

MODELERS

DATA MODEL



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$$P_{(j,t)} = \rho_{(j)} \cdot Q_{(j,t)}$$

FILLING THE BLANKS

DEVELOPING MATHEMATICAL MODELS

OPTEX WAY

OPTEX Mathematical Modeling System

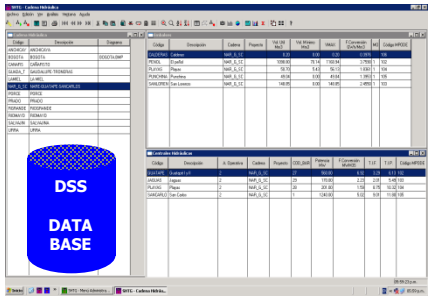
CODE GENERATION

OPTIMIZATION TECHNOLOGY

Dev C++ · GAMS · ILOG An IBM Company OPL · FICO Mosel · AIMMS · AMPL STREAMLINED MODELING FOR REAL OPTIMIZATION

Analytics

DATA MODEL



ALGEBRAIC MODEL

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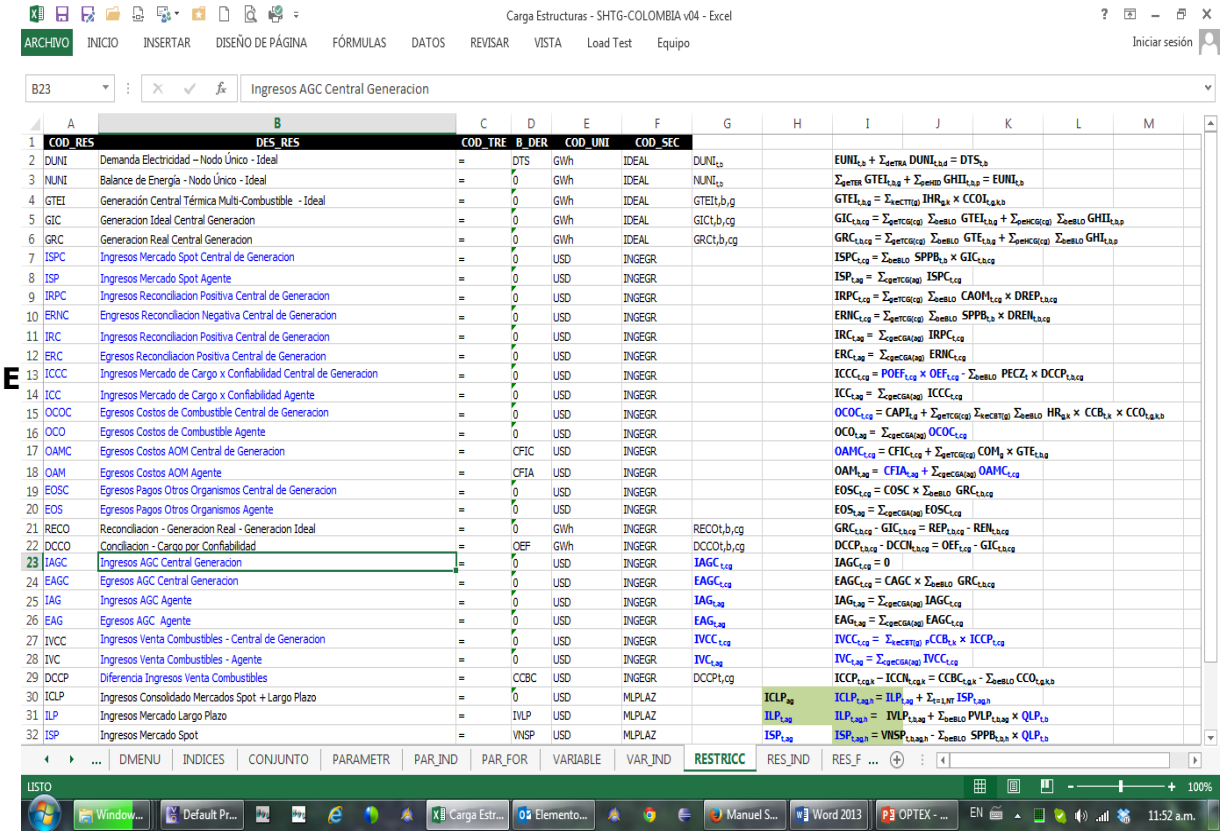
FILLING THE BLANKS



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	COD_RES	DES_RES	COD_TRE	B_DER	COD_UNI	COD_SEC							
2	DUNI	Demanda Electricidad – Nodo Único - Ideal	=	DTS	GWh	IDEAL	$DUNI_{t,b}$		$EUNI_{t,b} + \Sigma_{geTRA} DUNI_{t,bd} = DTS_{t,b}$				
3	NUNI	Balance de Energía - Nodo Único - Ideal	=	0	GWh	IDEAL	$NUNI_{t,b}$		$\Sigma_{geTER} GTEI_{t,b,g} + \Sigma_{geHID} GHII_{t,b,p} = EUNI_{t,b}$				
4	GTEI	Generación Central Térmica Multi-Combustible - Ideal	=	0	GWh	IDEAL	GTEIt,b,g		$GTEI_{t,b,g} = \Sigma_{keCTT(g)} IHR_{g,k} \times CCOI_{t,g,k,b}$				
5	GIC	Generacion Ideal Central Generacion	=	0	GWh	IDEAL	GICt,b,cg		$GIC_{t,b,cg} = \Sigma_{geTCG(cg)} \Sigma_{beBLO} GTEI_{t,b,g} + \Sigma_{geHCG(cg)} \Sigma_{beBLO} GHII_{t,b,p}$				
6	GRC	Generacion Real Central Generacion	=	0	GWh	IDEAL	GRCt,b,cg		$GRC_{t,b,cg} = \Sigma_{geTCG(cg)} \Sigma_{beBLO} GTE_{t,b,g} + \Sigma_{geHCG(cg)} \Sigma_{beBLO} GHI_{t,b,p}$				
7	ISPC	Ingresos Mercado Spot Central de Generacion	=	0	USD	INGEGR			$ISPC_{t,cg} = \Sigma_{beBLO} SPPB_{t,b} \times GIC_{t,b,cg}$				
8	ISP	Ingresos Mercado Spot Agente	=	0	USD	INGEGR			$ISP_{t,ag} = \Sigma_{cgeTCG(ag)} ISPC_{t,cg}$				
9	IRPC	Ingresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$IRPC_{t,cg} = \Sigma_{geTCG(cg)} \Sigma_{beBLO} CAOM_{t,cg} \times DREP_{t,b,cg}$				
10	ERNC	Engresos Reconciliacion Negativa Central de Generacion	=	0	USD	INGEGR			$ERNC_{t,cg} = \Sigma_{geTCG(cg)} \Sigma_{beBLO} SPPB_{t,b} \times DREN_{t,b,cg}$				
11	IRC	Ingresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$IRC_{t,ag} = \Sigma_{cgeCGA(ag)} IRPC_{t,cg}$				
12	ERC	Egresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$ERC_{t,ag} = \Sigma_{cgeCGA(ag)} ERNC_{t,cg}$				
13	ICCC	Ingresos Mercado de Cargo x Confiabilidad Central de Generacion	=	0	USD	INGEGR			$ICCC_{t,cg} = POEF_{t,cg} \times OEF_{t,cg} - \Sigma_{beBLO} PECZ_t \times DCCP_{t,b,cg}$				
14	ICC	Ingresos Mercado de Cargo x Confiabilidad Agente	=	0	USD	INGEGR			$ICC_{t,ag} = \Sigma_{cgeCGA(ag)} ICCC_{t,cg}$				
15	OCOC	Egresos Costos de Combustible Central de Generacion	=	0	USD	INGEGR			$OCOC_{t,cg} = CAPI_{t,g} + \Sigma_{geTCG(cg)} \Sigma_{keCBT(g)} \Sigma_{beBLO} HR_{g,k} \times CCB_{t,k} \times CCO_{t,g,k,b}$				
16	OCO	Egresos Costos de Combustible Agente	=	0	USD	INGEGR			$OCO_{t,ag} = \Sigma_{cgeCGA(ag)} OCOC_{t,cg}$				
17	OAMC	Egresos Costos AOM Central de Generacion	=	CFIC	USD	INGEGR			$OAMC_{t,cg} = CFIC_{t,cg} + \Sigma_{geTCG(cg)} COM_g \times GTE_{t,b,g}$				
18	OAM	Egresos Costos AOM Agente	=	CFIA	USD	INGEGR			$OAM_{t,ag} = CFIA_{t,ag} + \Sigma_{cgeCGA(ag)} OAMC_{t,cg}$				
19	EOSC	Egresos Pagos Otros Organismos Central de Generacion	=	0	USD	INGEGR			$EOSC_{t,cg} = COSC \times \Sigma_{beBLO} GRC_{t,b,cg}$				
20	EOS	Egresos Pagos Otros Organismos Agente	=	0	USD	INGEGR			$EOS_{t,ag} = \Sigma_{cgeCGA(ag)} EOSC_{t,cg}$				
21	RECO	Reconciliacion - Generacion Real - Generacion Ideal	=	0	GWh	INGEGR	RECOt,b,cg		$GRC_{t,b,cg} - GIC_{t,b,cg} = REP_{t,b,cg} - REN_{t,b,cg}$				
22	DCCO	Conciliacion - Cargo por Confiabilidad	=	QEF	GWh	INGEGR	DCCOt,b,cg		$DCCP_{t,b,cg} - DCCN_{t,b,cg} = OEF_{t,cg} - GIC_{t,b,cg}$				
23	IAGC	Ingresos AGC Central Generacion	=	0	USD	INGEGR	$IAGC_{t,cg}$		$IAGC_{t,cg} = 0$				
24	EAGC	Egresos AGC Central Generacion	=	0	USD	INGEGR	$EAGC_{t,cg}$		$EAGC_{t,cg} = CAGC \times \Sigma_{beBLO} GRC_{t,b,cg}$				
25	IAG	Ingresos AGC Agente	=	0	USD	INGEGR	$IAG_{t,ag}$		$IAG_{t,ag} = \Sigma_{cgeCGA(ag)} IAGC_{t,cg}$				
26	EAG	Egresos AGC Agente	=	0	USD	INGEGR	$EAG_{t,ag}$		$EAG_{t,ag} = \Sigma_{cgeCGA(ag)} EAGC_{t,cg}$				
27	IVCC	Ingresos Venta Combustibles - Central de Generacion	=	0	USD	INGEGR	$IVCC_{t,cg}$		$IVCC_{t,cg} = \Sigma_{keCBT(g)} {}_rCCB_{t,k} \times ICCP_{t,cg}$				
28	IVC	Ingresos Venta Combustibles - Agente	=	0	USD	INGEGR	$IVC_{t,ag}$		$IVC_{t,ag} = \Sigma_{cgeCGA(ag)} IVCC_{t,cg}$				
29	DCCP	Diferencia Ingresos Venta Combustibles	=	CCBC	USD	INGEGR	DCCPt,cg		$ICCP_{t,cg,k} - ICCN_{t,cg,k} = CCBC_{t,g,k} - \Sigma_{beBLO} CCO_{t,g,k,b}$				
30	ICLP	Ingresos Consolidado Mercados Spot + Largo Plazo	=	0	USD	MLPLAZ		$ICLP_{ag}$	$ICLP_{t,ag,h} = ILP_{t,ag} + \Sigma_{t=1,NT} ISP_{t,ag,h}$				
31	ILP	Ingresos Mercado Largo Plazo	=	IVLP	USD	MLPLAZ		$ILP_{t,ag}$	$ILP_{t,ag,h} = IVLP_{t,b,ag} + \Sigma_{beBLO} PVLP_{t,b,ag} \times QLP_{t,b}$				
32	ISP	Ingresos Mercado Spot	=	VNSP	USD	MLPLAZ		$ISP_{t,ag}$	$ISP_{t,ag,h} = VNSP_{t,b,ag,h} - \Sigma_{beBLO} SPPB_{t,b,h} \times QLP_{t,b}$				

MODEL IN EXCEL

.CSV FILES

CODE GENERATION

OPTIMIZATION TECHNOLOGY

OPL

Mathematical Modeling System

Carga Estructuras - SHTG-COLOMBIA v04 - Excel

ARCHIVO INICIO INSERTAR DISEÑO DE PÁGINA FÓRMULAS DATOS REVISAR VISTA Load Test Equipo Iniciar sesión

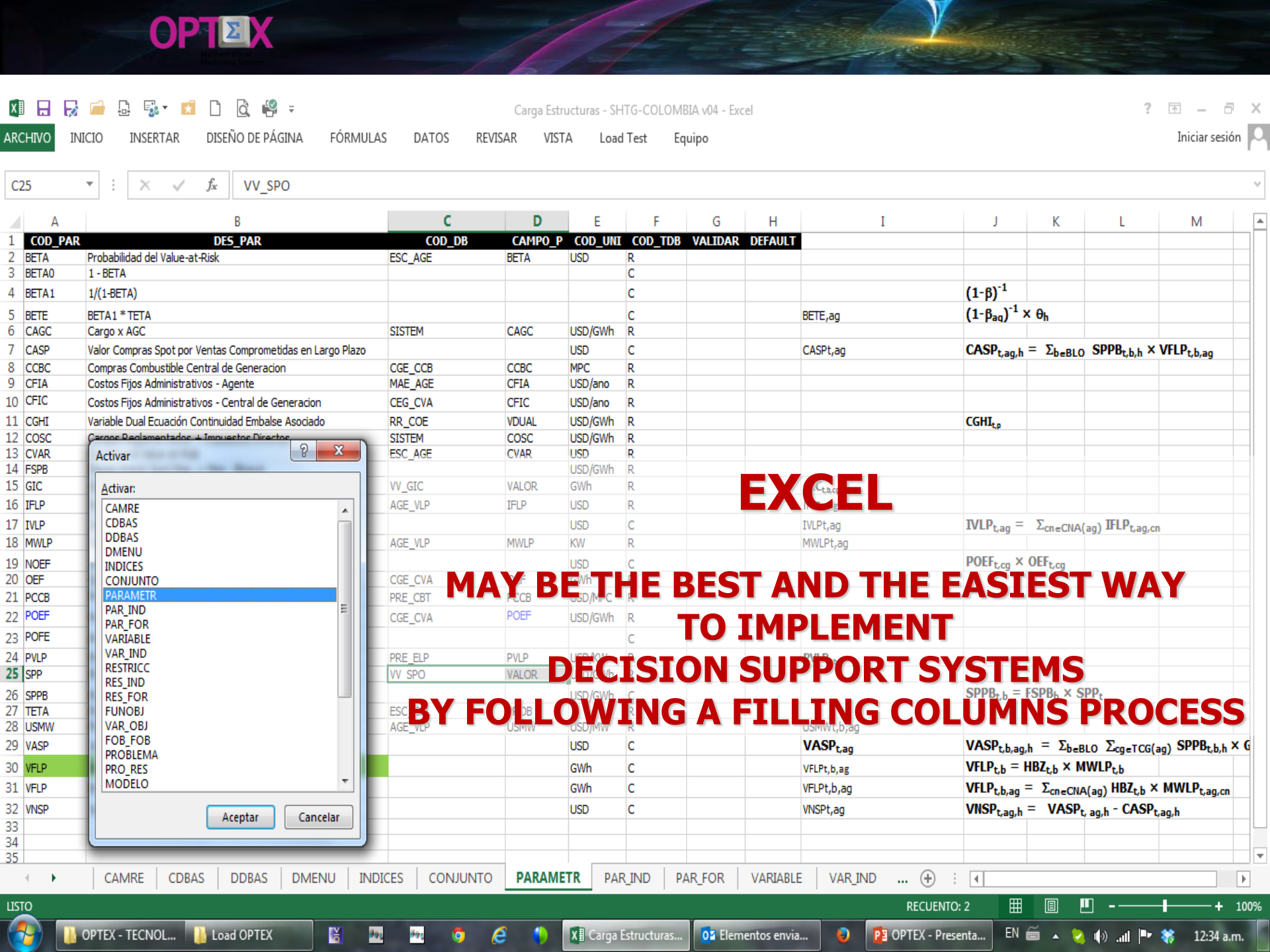
B23 | Ingresos AGC Central Generacion

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	COD_RES	DES_RES	COD_TRE	B_DER	COD_UNI	COD_SEC							
2	DUNI	Demanda Electricidad – Nodo Único - Ideal	=	DTS	GWh	IDEAL	$DUNI_{t,b}$		$EUNI_{t,b} + \sum_{deTRA} DUNI_{t,b,d} = DTS_{t,b}$				
3	NUNI	Balance de Energía - Nodo Único - Ideal	=	0	GWh	IDEAL	$NUNI_{t,b}$		$\sum_{geTER} GTEI_{t,b,g} + \sum_{peHID} GHII_{t,b,p} = EUNI_{t,b}$				
4	GTEI	Generación Central Térmica Multi-Combustible - Ideal	=	0	GWh	IDEAL	GTEIt,b,g		$GTEI_{t,b,g} = \sum_{keCTT(g)} IHR_{g,k} \times CCOI_{t,g,k,b}$				
5	GIC	Generacion Ideal Central Generacion	=	0	GWh	IDEAL	GICt,b,cg		$GIC_{t,b,cg} = \sum_{geTCG(cg)} \sum_{beBLO} GTEI_{t,b,g} + \sum_{peHCG(cg)} \sum_{beBLO} GHII_{t,b,p}$				
6	GRC	Generacion Real Central Generacion	=	0	GWh	IDEAL	GRCt,b,cg		$GRC_{t,b,cg} = \sum_{geTCG(cg)} \sum_{beBLO} GTE_{t,b,g} + \sum_{peHCG(cg)} \sum_{beBLO} GHI_{t,b,p}$				
7	ISPC	Ingresos Mercado Spot Central de Generacion	=	0	USD	INGEGR			$ISPC_{t,cg} = \sum_{beBLO} SPPB_{t,b} \times GIC_{t,b,cg}$				
8	ISP	Ingresos Mercado Spot Agente	=	0	USD	INGEGR			$ISP_{t,ag} = \sum_{cgeTCG(ag)} ISPC_{t,cg}$				
9	IRPC	Ingresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$IRPC_{t,cg} = \sum_{geTCG(cg)} \sum_{beBLO} CAOM_{t,cg} \times DREP_{t,b,cg}$				
10	ERNC	Engresos Reconciliacion Negativa Central de Generacion	=	0	USD	INGEGR			$ERNC_{t,cg} = \sum_{geTCG(cg)} \sum_{beBLO} SPPB_{t,b} \times DREN_{t,b,cg}$				
11	IRC	Ingresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$IRC_{t,ag} = \sum_{cgeCGA(ag)} IRPC_{t,cg}$				
12	ERC	Egresos Reconciliacion Positiva Central de Generacion	=	0	USD	INGEGR			$ERC_{t,ag} = \sum_{cgeCGA(ag)} ERNC_{t,cg}$				
13	ICCC	Ingresos Mercado de Cargo x Confiabilidad Central de Generacion	=	0	USD	INGEGR			$ICCC_{t,cg} = POEF_{t,cg} \times OEF_{t,cg} - \sum_{beBLO} PECZ_t \times DCCP_{t,b,cg}$				
14	ICC	Ingresos Mercado de Cargo x Confiabilidad Agente	=	0	USD	INGEGR			$ICC_{t,ag} = \sum_{cgeCGA(ag)} ICCC_{t,cg}$				
15	OCOC	Egresos Costos de Combustible Central de Generacion	=	0	USD	INGEGR			$OCOC_{t,cg} = CAPI_{t,g} + \sum_{geTCG(cg)} \sum_{keCBT(g)} \sum_{beBLO} HR_{g,k} \times CCB_{t,k} \times CCO_{t,g,k,b}$				
16	OCO	Egresos Costos de Combustible Agente	=	0	USD	INGEGR			$OCO_{t,ag} = \sum_{cgeCGA(ag)} OCOC_{t,cg}$				
17	OAMC	Egresos Costos AOM Central de Generacion	=	CFIC	USD	INGEGR			$OAMC_{t,cg} = CFIC_{t,cg} + \sum_{geTCG(cg)} COM_g \times GTE_{t,b,g}$				
18	OAM	Egresos Costos AOM Agente	=	CFIA	USD	INGEGR			$OAM_{t,ag} = CFIA_{t,ag} + \sum_{cgeCGA(ag)} OAMC_{t,cg}$				
19	EOSC	Egresos Pagos Otros Organismos Central de Generacion	=	0	USD	INGEGR			$EOSC_{t,cg} = COSC \times \sum_{beBLO} GRC_{t,b,cg}$				
20	EOS	Egresos Pagos Otros Organismos Agente	=	0	USD	INGEGR			$EOS_{t,ag} = \sum_{cgeCGA(ag)} EOSC_{t,cg}$				
21	RECO	Reconciliacion - Generacion Real - Generacion Ideal	=	0	GWh	INGEGR	RECOt,b,cg		$GRC_{t,b,cg} - GIC_{t,b,cg} = REP_{t,b,cg} - REN_{t,b,cg}$				
22	DCCO	Conciliacion - Cargo por Confiabilidad	=	OEF	GWh	INGEGR	DCCOt,b,cg		$DCCP_{t,b,cg} - DCCN_{t,b,cg} = OEF_{t,cg} - GIC_{t,b,cg}$				
23	IAGC	Ingresos AGC Central Generacion	=	0	USD	INGEGR	$IAGC_{t,cg}$		$IAGC_{t,cg} = 0$				
24	EAGC	Egresos AGC Central Generacion	=	0	USD	INGEGR	$EAGC_{t,cg}$		$EAGC_{t,cg} = CAGC \times \sum_{beBLO} GRC_{t,b,cg}$				
25	IAG	Ingresos AGC Agente	=	0	USD	INGEGR	$IAG_{t,ag}$		$IAG_{t,ag} = \sum_{cgeCGA(ag)} IAGC_{t,cg}$				
26	EAG	Egresos AGC Agente	=	0	USD	INGEGR	$EAG_{t,ag}$		$EAG_{t,ag} = \sum_{cgeCGA(ag)} EAGC_{t,cg}$				
27	IVCC	Ingresos Venta Combustibles - Central de Generacion	=	0	USD	INGEGR	$IVCC_{t,cg}$		$IVCC_{t,cg} = \sum_{keCBT(g)} {}_{P}CCB_{t,k} \times ICCP_{t,cg}$				
28	IVC	Ingresos Venta Combustibles - Agente	=	0	USD	INGEGR	$IVC_{t,ag}$		$IVC_{t,ag} = \sum_{cgeCGA(ag)} IVCC_{t,cg}$				
29	DCCP	Diferencia Ingresos Venta Combustibles	=	CCBC	USD	INGEGR	DCCPt,cg		$ICCP_{t,cg,k} - ICCN_{t,cg,k} = CCBC_{t,g,k} - \sum_{beBLO} CCO_{t,g,k,b}$				
30	ICLP	Ingresos Consolidado Mercados Spot + Largo Plazo	=	0	USD	MLPLAZ		$ICLP_{ag}$	$ICLP_{t,ag,h} = ILP_{t,ag} + \sum_{t=1,NT} ISP_{t,ag,h}$				
31	ILP	Ingresos Mercado Largo Plazo	=	IVLP	USD	MLPLAZ		$ILP_{t,ag}$	$ILP_{t,ag,h} = IVLP_{t,b,ag} + \sum_{beBLO} PVLP_{t,b,ag} \times QLP_{t,b}$				
32	ISP	Ingresos Mercado Spot	=	VNSP	USD	MLPLAZ		$ISP_{t,ag}$	$ISP_{t,ag,h} = VNSP_{t,b,ag,h} - \sum_{beBLO} SPPB_{t,b,h} \times QLP_{t,b}$				

DMENU | INDICES | CONJUNTO | PARAMETR | PAR_IND | PAR_FOR | VARIABLE | VAR_IND | RESTRICC | RES_IND | RES_F ...

LISTO 100%

OPTEX - TECNOL... Load OPTEX Carga Estructuras... Elementos envia... OPTEX - Presenta... EN 12:37 a.m.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	COD_PAR	DES_PAR	COD_DB	CAMPO_P	COD_UNI	COD_TDB	VALIDAR	DEFAULT					
2	BETA	Probabilidad del Value-at-Risk	ESC_AGE	BETA	USD	R							
3	BETA0	1 - BETA				C							
4	BETA1	1/(1-BETA)				C				$(1-\beta)^{-1}$			
5	BETE	BETA1 * TETA				C			BETE,ag	$(1-\beta_{aq})^{-1} \times \theta_h$			
6	CAGC	Cargo x AGC	SISTEM	CAGC	USD/GWh	R							
7	CASP	Valor Compras Spot por Ventas Comprometidas en Largo Plazo			USD	C			CASPt,ag	$CASP_{t,ag,h} = \Sigma_{b \in BLO}\ SPPB_{t,b,h} \times VFLP_{t,b,ag}$			
8	CCBC	Compras Combustible Central de Generacion	CGE_CCB	CCBC	MPC	R							
9	CFIA	Costos Fijos Administrativos - Agente	MAE_AGE	CFIA	USD/ano	R							
10	CFIC	Costos Fijos Administrativos - Central de Generacion	CEG_CVA	CFIC	USD/ano	R							
11	CGHI	Variable Dual Ecuación Continuidad Embalse Asociado	RR_COE	VDUAL	USD/GWh	R				$CGHI_{t,p}$			
12	COSC	Cargos Reglamentados + Impuestos Directos	SISTEM	COSC	USD/GWh	R							
13	CVAR		ESC_AGE	CVAR	USD	R							
14	FSPB				USD/GWh	R							
15	GIC		VV_GIC	VALOR	GWh	R			$C_{t,cg}$				
16	IFLP		AGE_VLP	IFLP	USD	R							
17	IVLP				USD	C			IVLPt,ag	$IVLP_{t,ag} = \Sigma_{cn \in CNA(ag)}\ IFLP_{t,ag,cn}$			
18	MWLP		AGE_VLP	MWLP	KW	R			MWLPt,ag				
19	NOEF				USD	C				$POEF_{t,cg} \times OEF_{t,cg}$			
20	OEF		CGE_CVA										
21	PCCB		PRE_CBT	PCCB	USD/MPC	R							
22	POEF		CGE_CVA	POEF	USD/GWh	R							
23	POFE					C							
24	PVLP		PRE_ELP	PVLP	USD/KW	R			PVLP				
25	SPP		VV_SPO	VALOR									
26	SPPB				USD/GWh	C				$SPPB_{t,b} = FSPB_h \times SPP_t$			
27	TETA		ESC			R							
28	USMW		AGE_VLP	USMW	USD/MW	R			USMWt,b,ag				
29	VASP				USD	C			$VASP_{t,ag}$	$VASP_{t,b,ag,h} = \Sigma_{b \in BLO}\ \Sigma_{cg \in TCG(ag)}\ SPPB_{t,b,h} \times G$			
30	VFLP				GWh	C			VFLPt,b,ag	$VFLP_{t,b} = HBZ_{t,b} \times MWLP_{t,b}$			
31	VFLP				GWh	C			VFLPt,b,ag	$VFLP_{t,b,ag} = \Sigma_{cn \in CNA(ag)}\ HBZ_{t,b} \times MWLP_{t,ag,cn}$			
32	VNSP				USD	C			VNSPt,ag	$VNSP_{t,ag,h} = VASP_{t,ag,h} - CASP_{t,ag,h}$			
33													
34													
35													

OPTEX-ASTABM - Menu Programador OPTEX - [OPTEX_GUI - Menu Explorer]

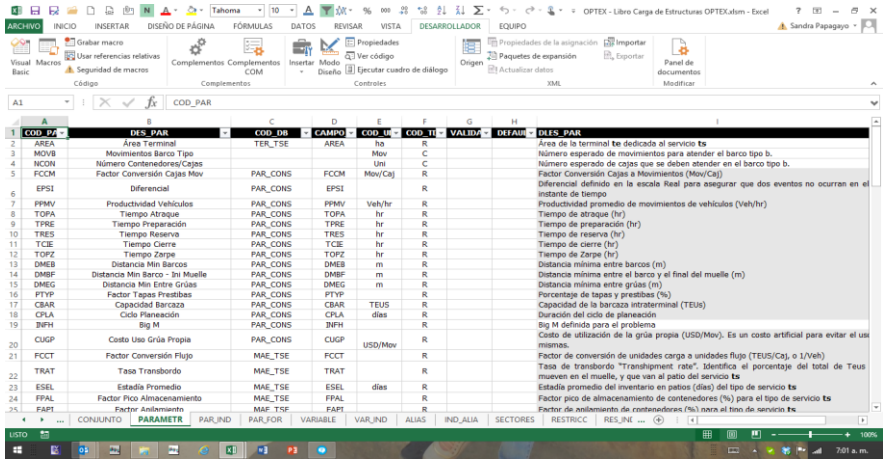
Archivo Ver Herramientas Ventana Ayuda

- Mathematical Definitions
- Advanced Concepts
- Financial Modeling
- Family of Scenarios
- Data Model
- Optimization Libraries/Program
- Auxiliar Entities
- Report Configuration
- Menú OPTEX User
- Carga Modelo via CSV
- Chequeo Estructura SSD
- Documentos OPTEX
- Documentos Aplicacion

Mathematical Definitions | Advanced Concepts | Financial Modeling | Family of Scenarios | Data Model | Optimization Libraries/Program | Auxiliar Entities

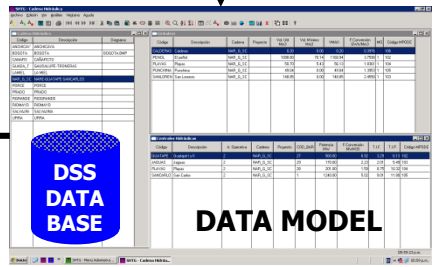
Report Configuration | Menú OPTEX User | Carga Modelo via CSV | Chequeo Estructura SSD | Documentos OPTEX | Documentos Aplicacion

GENEX MenuWindow 08:50:11 a. m.



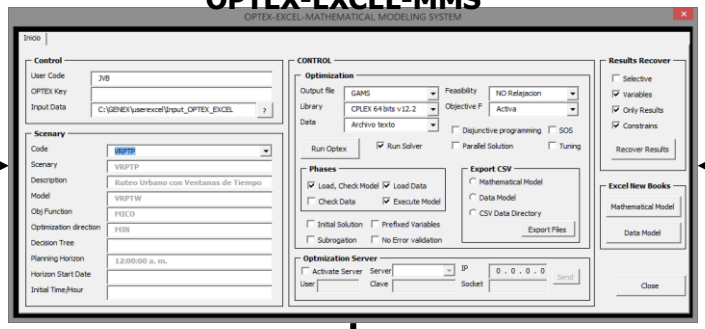
COD_PAR	DES_PAR	COD_DB	CAMPO	COD_UN	COD_TI	VALIDA	DEFAUL	DLES_PAR
AREA	Área Terminal	TER_TSE	AREA	ha	R			Área de la terminal **ts** dedicada al servicio **ts**
MOVB	Movimientos Barco Tipo			Mov	C			Número esperado de movimientos para atender el barco tipo b.
NCON	Número Contenedores/Cajas			Uni	C			Número esperado de cajas que se deben atender en el barco tipo b.
FCCM	Factor Conversión Cajas Mov	PAR_CONS	FCCM	Mov/Caj	R			Factor Conversión Cajas a Movimientos (Mov/Caj)
EPSI	Diferencial	PAR_CONS	EPSI		R			Diferencial definido en la escala Real para asegurar que dos eventos no ocurran en el instante de tiempo
PPMV	Productividad Vehículos	PAR_CONS	PPMV	Veh/hr	R			Productividad promedio de movimientos de vehículos (Veh/hr)
TOPA	Tiempo Atraque	PAR_CONS	TOPA	hr	R			Tiempo de atraque (hr)
TPRE	Tiempo Preparación	PAR_CONS	TPRE	hr	R			Tiempo de preparación (hr)
TRES	Tiempo Reserva	PAR_CONS	TRES	hr	R			Tiempo de reserva (hr)
TCIE	Tiempo Cierre	PAR_CONS	TCIE	hr	R			Tiempo de cierre (hr)
TOPZ	Tiempo Zarpe	PAR_CONS	TOPZ	hr	R			Tiempo de Zarpe (hr)
DMEB	Distancia Min Barcos	PAR_CONS	DMEB	m	R			Distancia mínima entre barcos (m)
DMBF	Distancia Min Barco - Ini Muelle	PAR_CONS	DMBF	m	R			Distancia mínima entre el barco y el final del muelle (m)
DMEG	Distancia Min Entre Grúas	PAR_CONS	DMEG	m	R			Distancia mínima entre grúas (m)
PTYP	Factor Tapas Prestibas	PAR_CONS	PTYP		R			Porcentaje de tapas y prestibas (%)
CBAR	Capacidad Barcaza	PAR_CONS	CBAR	TEUS	R			Capacidad de la barcaza intraterminal (TEUs)
CPLA	Ciclo Planeación	PAR_CONS	CPLA	días	R			Duración del ciclo de planeación
INFH	Big M	PAR_CONS	INFH		R			Big M definida para el problema
CUGP	Costo Uso Grúa Propia	PAR_CONS	CUGP	USD/Mov	R			Costo de utilización de la grúa propia (USD/Mov). Es un costo artificial para evitar el uso mismos.
FCCT	Factor Conversión Flujo	MAE_TSE	FCCT		R			Factor de conversión de unidades carga a unidades flujo (TEUS/Caj, o 1/Veh)
TRAT	Tasa Transbordo	MAE_TSE	TRAT		R			Tasa de transbordo "Transhipment rate". Identifica el porcentaje del total de Teus mueven en el muelle, y que van al patio del servicio **ts**
ESEL	Estadía Promedio	MAE_TSE	ESEL	días	R			Estadía promedio del inventario en patios (días) del tipo de servicio **ts**
FPAL	Factor Pico Almacenamiento	MAE_TSE	FPAL		R			Factor pico de almacenamiento de contenedores (%) para el tipo de servicio **ts**
FAPI	Factor Apilamiento	MAE_TSE	FAPI		R			Factor de apilamiento de contenedores (%) para el tipo de servicio **ts**

Analytics



DATA MODEL

OPTEX-EXCEL-MMS



$$Min \quad \Psi = \sum_{t=1}^{T} \sum_{i=1}^{N_t} \Psi_{(i,t)}$$

s.a.

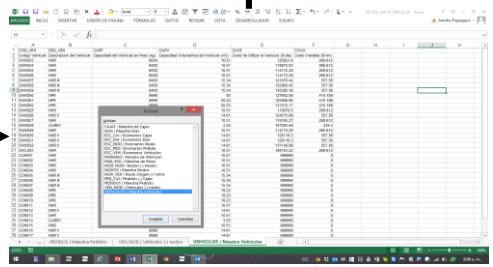
$$\Psi_{(i,t)} = \frac{c_{(i,t)}}{2} \cdot P_{(i,t)}{}^2 + e_{(i,t)} \cdot P_{(i,t)}$$

$$V_{(j,t+1)} = V_{(j,t)} + \tau \cdot \left(A_{(j,t)} - Q_{(j,t)} - S_{(j,t)} \right)$$

$$P_{(j,t)} = \rho_{(j)} \cdot Q_{(j,t)}$$

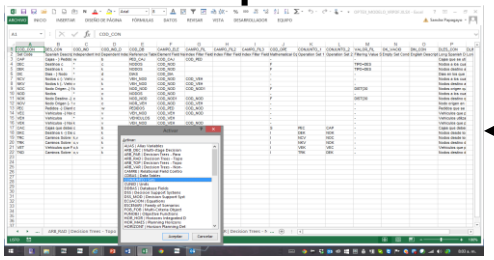
ALGEBRAIC MODEL

FILLING THE BLANKS



DATA IN EXCEL

*.CSV FILES



MODEL IN EXCEL

CODE GENERATION

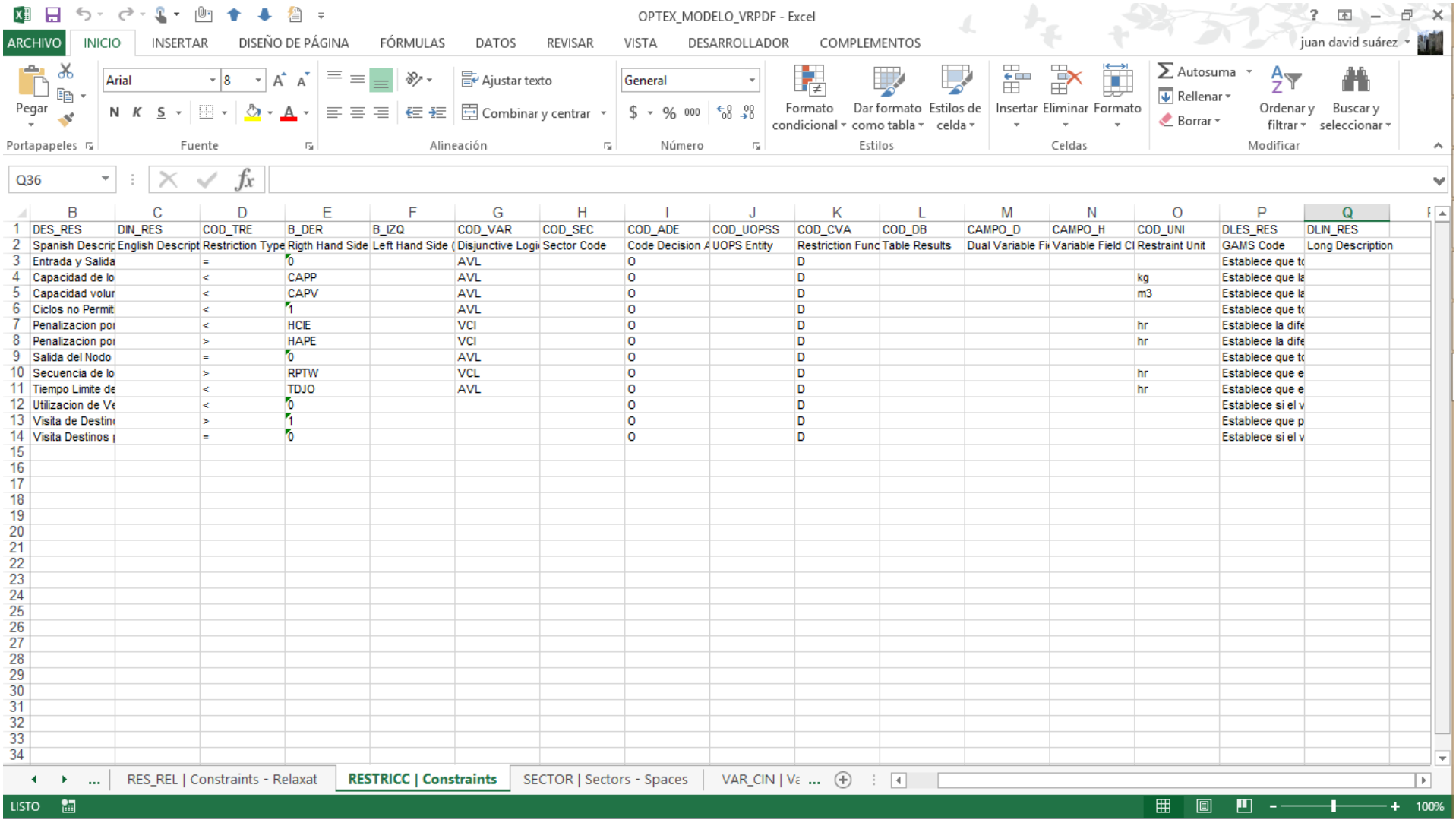
OPTEX Mathematical Modeling System

OPTEX-EXCEL-GUI

OPTIMIZATION TECHNOLOGY

DEV C++ · GAMS · ILOG An IBM Company (OPL) · FICO Mosel · AIMMS · AMPL STREAMLINED MODELING FOR REAL OPTIMIZATION

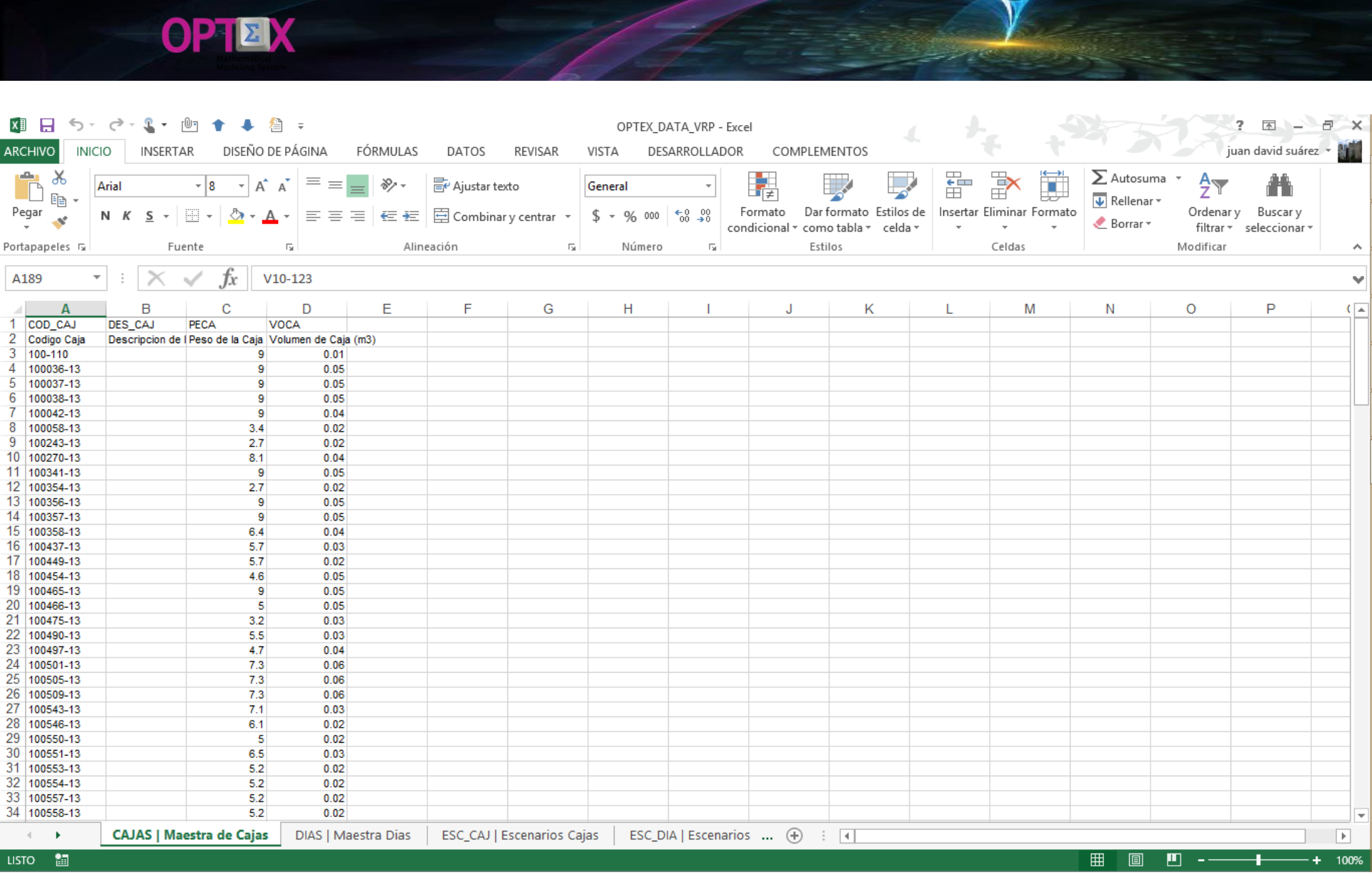
PRIMAL – DUAL VARIABLES



	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	DES_RES	DIN_RES	COD_TRE	B_DER	B_IZQ	COD_VAR	COD_SEC	COD_ADE	COD_UOPSS	COD_CVA	COD_DB	CAMPO_D	CAMPO_H	COD_UNI	DLES_RES	DLIN_RES
2	Spanish Descrip	English Descript	Restriction Type	Rigth Hand Side	Left Hand Side (	Disjunctive Logi	Sector Code	Code Decision A	UOPS Entity	Restriction Func	Table Results	Dual Variable Fi	Variable Field Cl	Restraint Unit	GAMS Code	Long Description
3	Entrada y Salida		=	0		AVL		O		D					Establece que to	
4	Capacidad de lo		<	CAPP		AVL		O		D				kg	Establece que la	
5	Capacidad volur		<	CAPV		AVL		O		D				m3	Establece que la	
6	Ciclos no Permit		<	1		AVL		O		D					Establece que to	
7	Penalizacion por		<	HCIE		VCI		O		D				hr	Establece la dife	
8	Penalizacion por		>	HAPE		VCI		O		D				hr	Establece la dife	
9	Salida del Nodo		=	0		AVL		O		D					Establece que to	
10	Secuencia de lo		>	RPTW		VCL		O		D				hr	Establece que e	
11	Tiempo Limite de		<	TDJO		AVL		O		D				hr	Establece que e	
12	Utilizacion de Ve		<	0				O		D					Establece si el v	
13	Visita de Destin		>	1				O		D					Establece que p	
14	Visita Destinos		=	0				O		D					Establece si el v	

ALL YOUR MODELING USING EXCEL SPREADSHEETS, HERE YOU CAN TAKE A LOOK TO THE CONSTRAINS OF THE MODEL.

Analytics

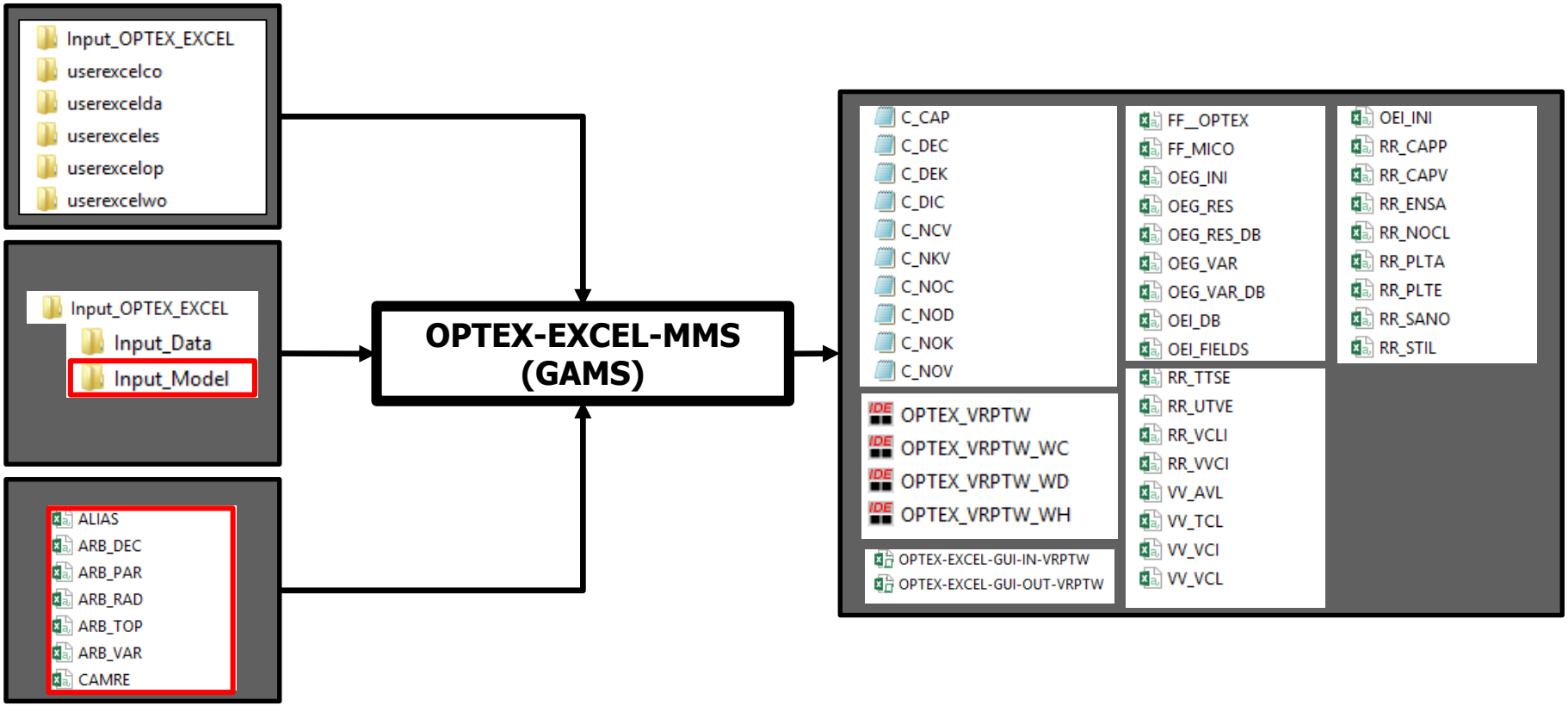


	A	B	C	D
1	COD_CAJ	DES_CAJ	PECA	VOCA
2	Codigo Caja	Descripcion de l	Peso de la Caja	Volumen de Caja (m3)
3	100-110		9	0.01
4	100036-13		9	0.05
5	100037-13		9	0.05
6	100038-13		9	0.05
7	100042-13		9	0.04
8	100058-13		3.4	0.02
9	100243-13		2.7	0.02
10	100270-13		8.1	0.04
11	100341-13		9	0.05
12	100354-13		2.7	0.02
13	100356-13		9	0.05
14	100357-13		9	0.05
15	100358-13		6.4	0.04
16	100437-13		5.7	0.03
17	100449-13		5.7	0.02
18	100454-13		4.6	0.05
19	100465-13		9	0.05
20	100466-13		5	0.05
21	100475-13		3.2	0.03
22	100490-13		5.5	0.03
23	100497-13		4.7	0.04
24	100501-13		7.3	0.06
25	100505-13		7.3	0.06
26	100509-13		7.3	0.06
27	100543-13		7.1	0.03
28	100546-13		6.1	0.02
29	100550-13		5	0.02
30	100551-13		6.5	0.03
31	100553-13		5.2	0.02
32	100554-13		5.2	0.02
33	100557-13		5.2	0.02
34	100558-13		5.2	0.02

FILL YOUR MODEL DATA IN EXCEL SPREADSHEETS, YOU'LL HAVE ALL YOUR MODEL INFORMATION IN AN ORGANIZED WAY.

Analytics

FROM TWO SIMPLE WORKBOOKS TO A COMPLETE INFORMATION SYSTEM. YOU WON'T EVEN NOTICE WHEN IT HAPPENED.

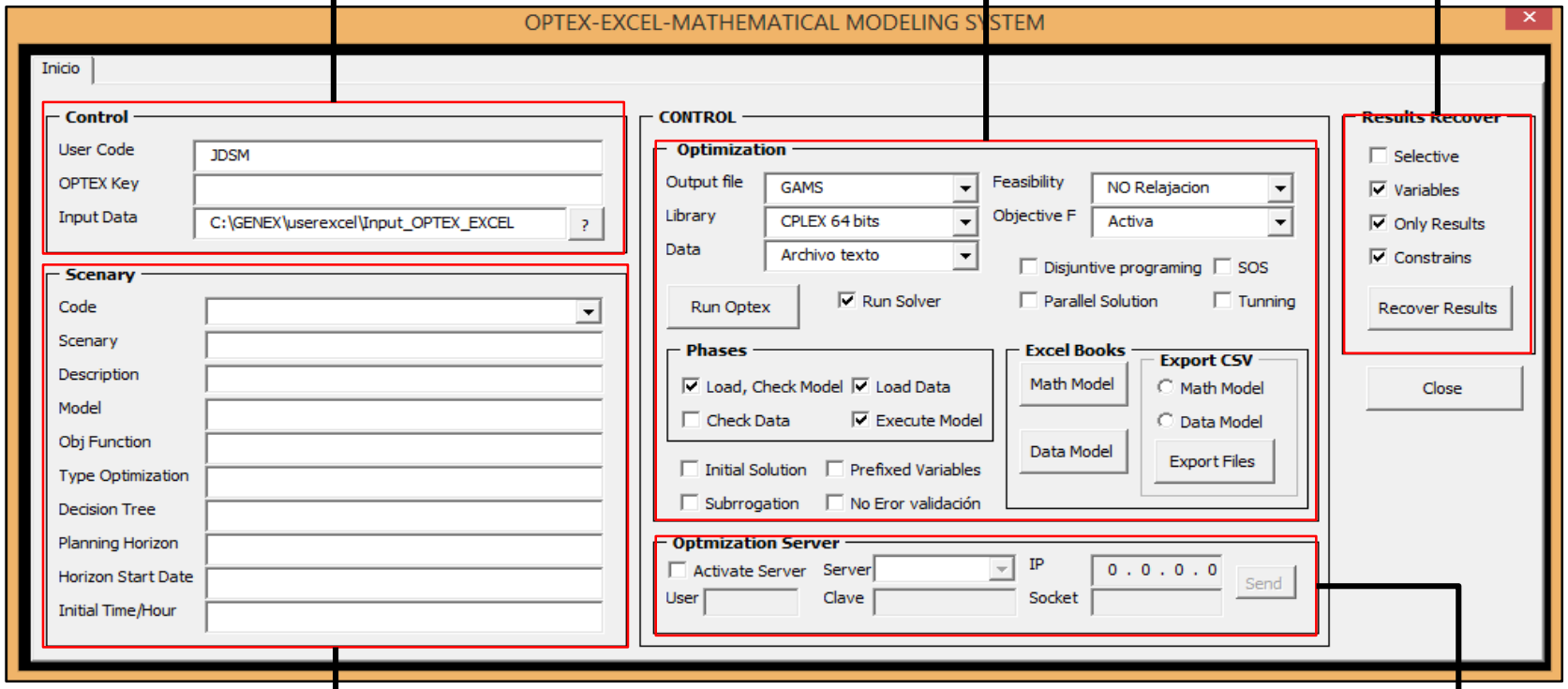


YOU CAN CHECK ALL THE VALUES FOR YOUR DECISION VARIABLES AND CONSTRAIN IN INDEPENDENT FILES.

USER LOGIN, AND EXCEL APP SELECTION

SELECT AMONG DIFFERENT OPTIMIZATION SOFTWARE AND SOLVERS.

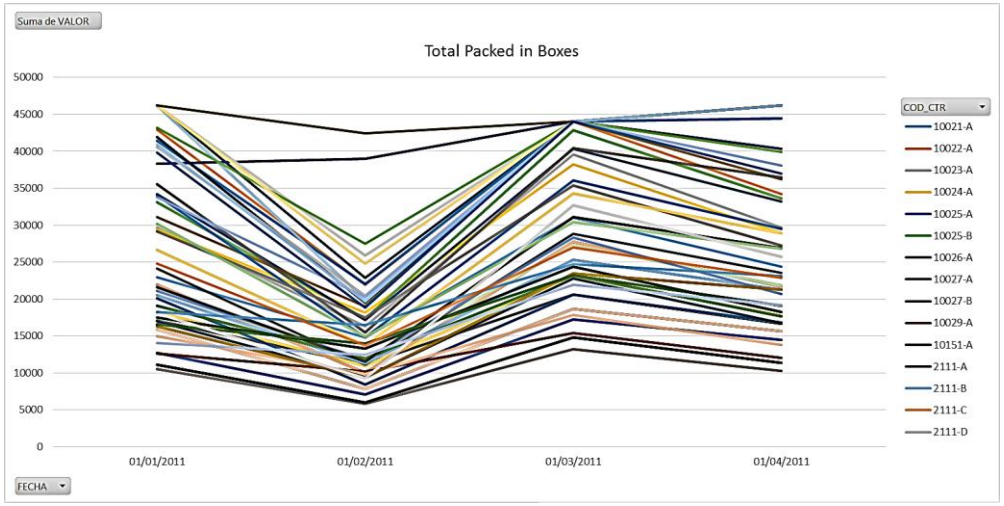
SELECT WHAT ELEMENTS YOU WISH TO RECOVER.

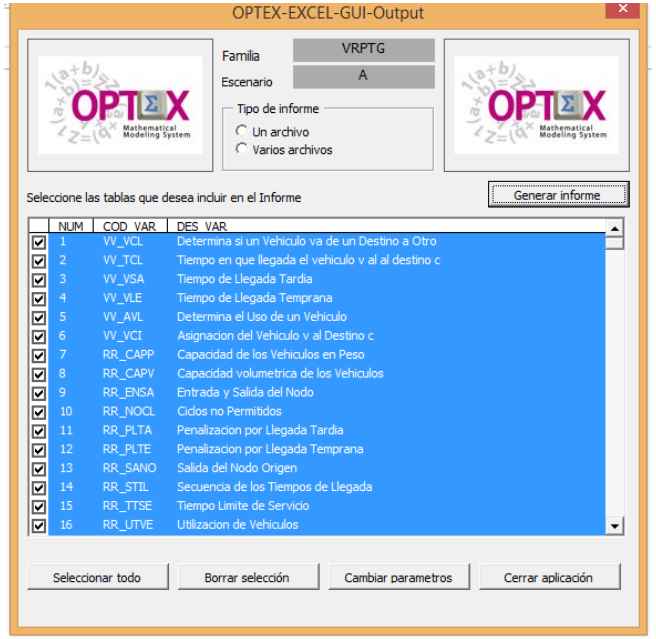


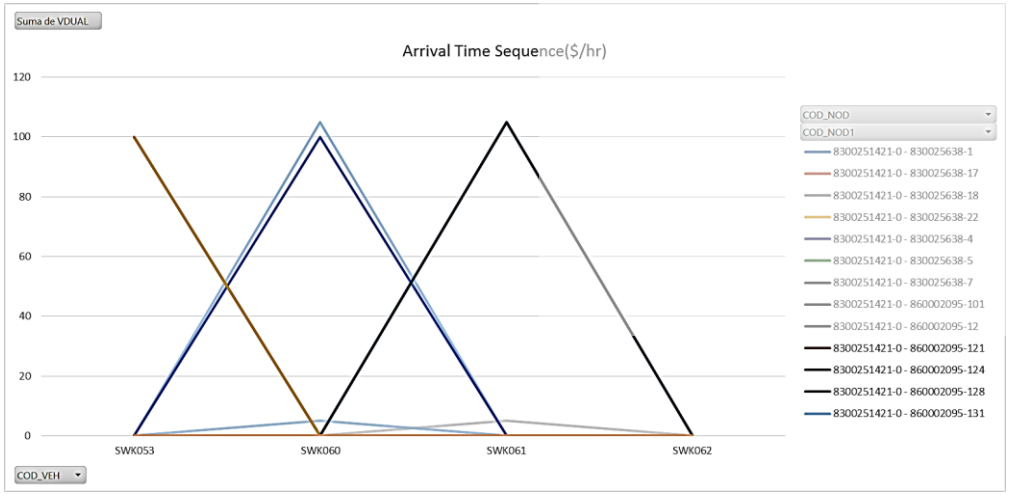
SELECT AND VISUALIZE WHAT YOU ARE ABOUT TO RUN

RUN YOUR OPTIMIZATION PROBLEM WITH CLOUD COMPUTING

Analytics

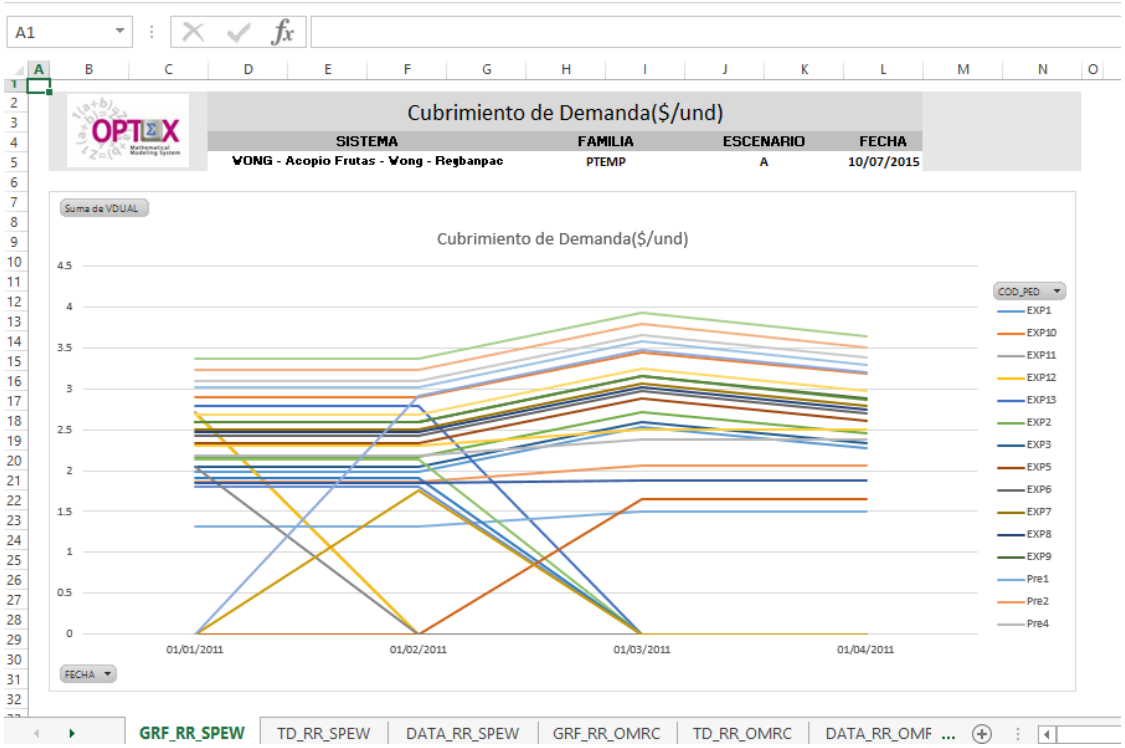


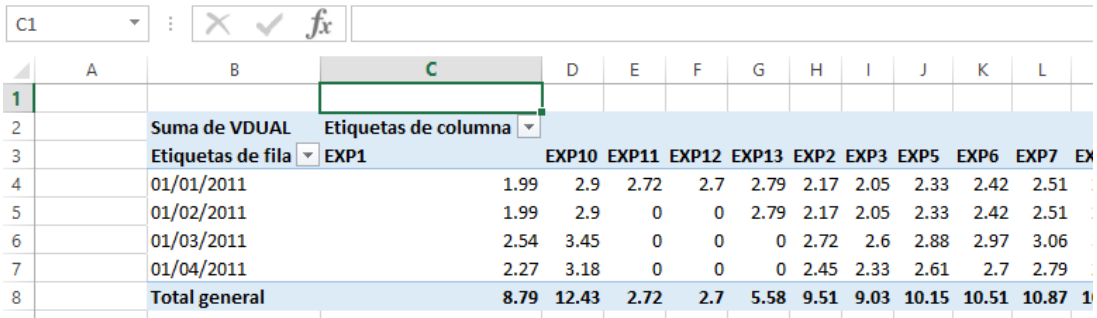




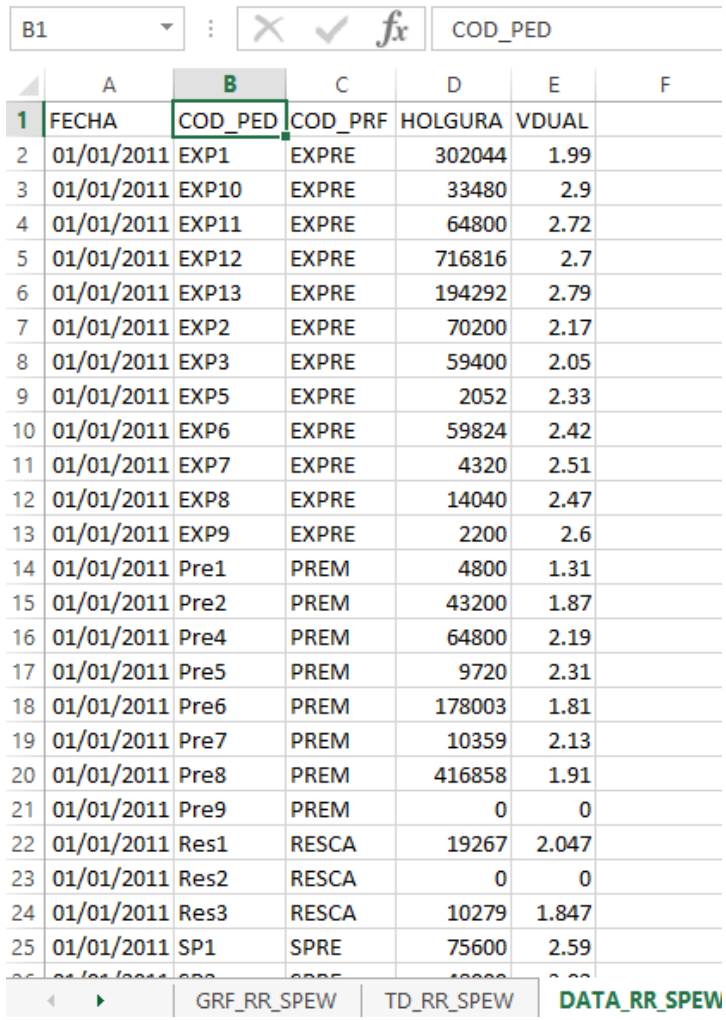
YOUR RESULTS ARE PRESENTED IN EXCEL USING PIVOT TABLES. ALL YOUR MODELLING PROCESS USING ONLY EXCEL. AS EASY AS FILL THE INFORMATION AND MAKE SOME CLICKS.

Analytics





Suma de VDUAL	Etiquetas de columna										
Etiquetas de fila	EXP1	EXP10	EXP11	EXP12	EXP13	EXP2	EXP3	EXP5	EXP6	EXP7	EX
01/01/2011	1.99	2.9	2.72	2.7	2.79	2.17	2.05	2.33	2.42	2.51	
01/02/2011	1.99	2.9	0	0	2.79	2.17	2.05	2.33	2.42	2.51	
01/03/2011	2.54	3.45	0	0	0	2.72	2.6	2.88	2.97	3.06	
01/04/2011	2.27	3.18	0	0	0	2.45	2.33	2.61	2.7	2.79	
Total general	8.79	12.43	2.72	2.7	5.58	9.51	9.03	10.15	10.51	10.87	1



FECHA	COD_PED	COD_PRF	HOLGURA	VDUAL
01/01/2011	EXP1	EXPRE	302044	1.99
01/01/2011	EXP10	EXPRE	33480	2.9
01/01/2011	EXP11	EXPRE	64800	2.72
01/01/2011	EXP12	EXPRE	716816	2.7
01/01/2011	EXP13	EXPRE	194292	2.79
01/01/2011	EXP2	EXPRE	70200	2.17
01/01/2011	EXP3	EXPRE	59400	2.05
01/01/2011	EXP5	EXPRE	2052	2.33
01/01/2011	EXP6	EXPRE	59824	2.42
01/01/2011	EXP7	EXPRE	4320	2.51
01/01/2011	EXP8	EXPRE	14040	2.47
01/01/2011	EXP9	EXPRE	2200	2.6
01/01/2011	Pre1	PREM	4800	1.31
01/01/2011	Pre2	PREM	43200	1.87
01/01/2011	Pre4	PREM	64800	2.19
01/01/2011	Pre5	PREM	9720	2.31
01/01/2011	Pre6	PREM	178003	1.81
01/01/2011	Pre7	PREM	10359	2.13
01/01/2011	Pre8	PREM	416858	1.91
01/01/2011	Pre9	PREM	0	0
01/01/2011	Res1	RESCA	19267	2.047
01/01/2011	Res2	RESCA	0	0
01/01/2011	Res3	RESCA	10279	1.847
01/01/2011	SP1	SPRE	75600	2.59

GRF_RR_SPEW | TD_RR_SPEW | DATA_RR_SPEW

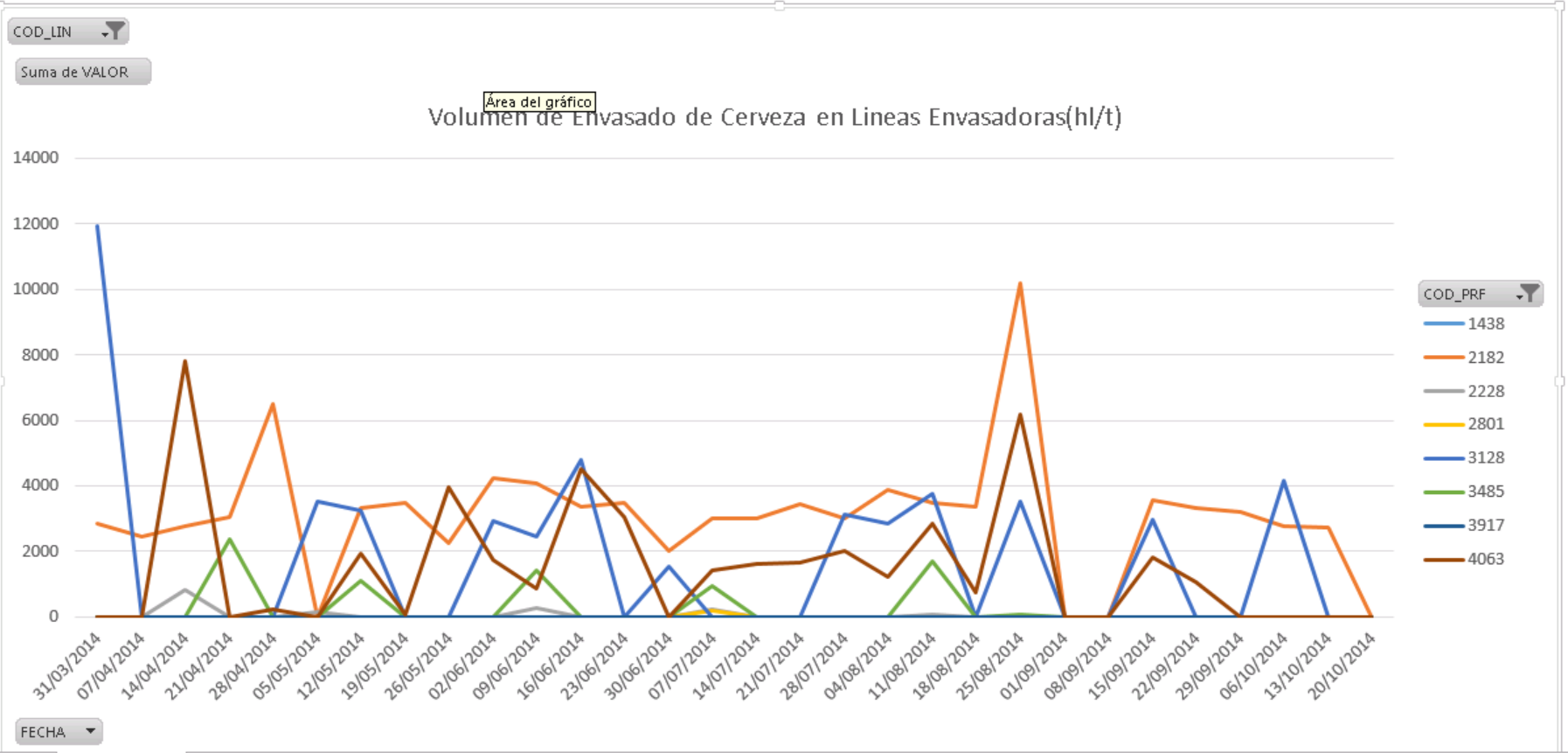
ALL YOUR RESULTS IN ONE EXCEL BOOK.

Analytics

VV_PCE - Excel

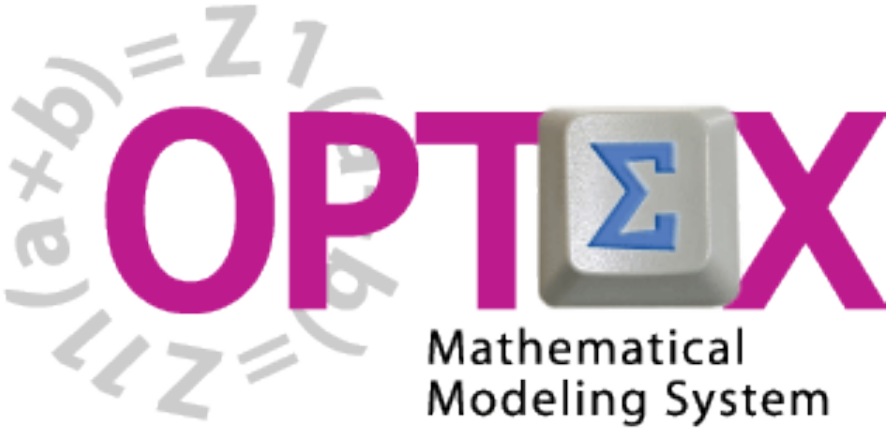
Volumen de Envasado de Cerveza en Lineas Envasadoras(hl/t)

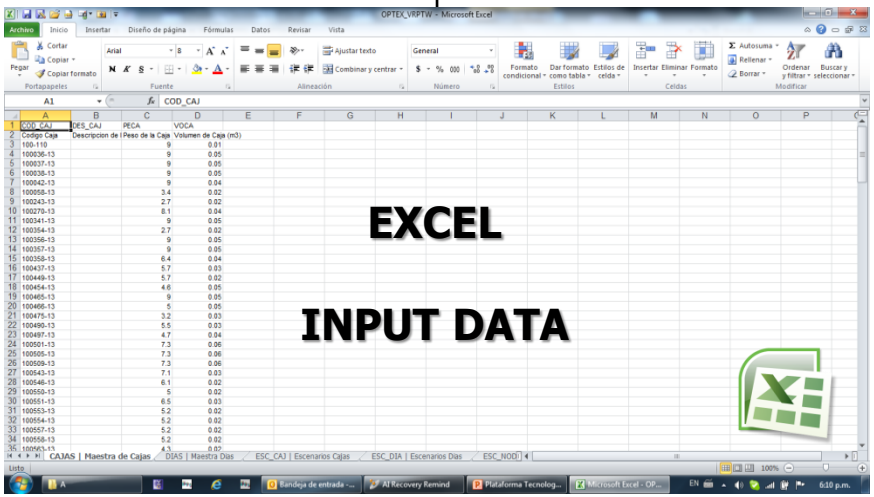
SISTEMA	FAMILIA	ESCENARIO	FECHA
SIMM / BAVARIA	P2014C	1	07/07/2014



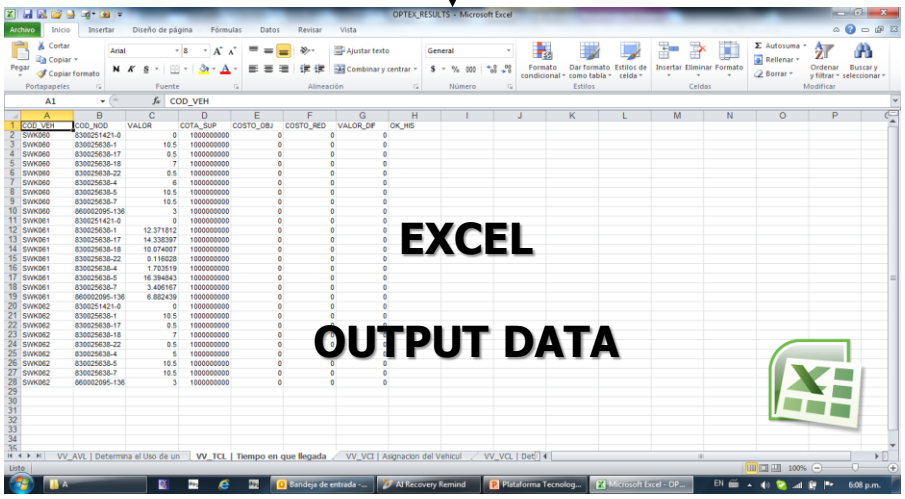
GRF_VV_PCE | TD_VV_PCE | DATA_VV_PCE | Hoja1

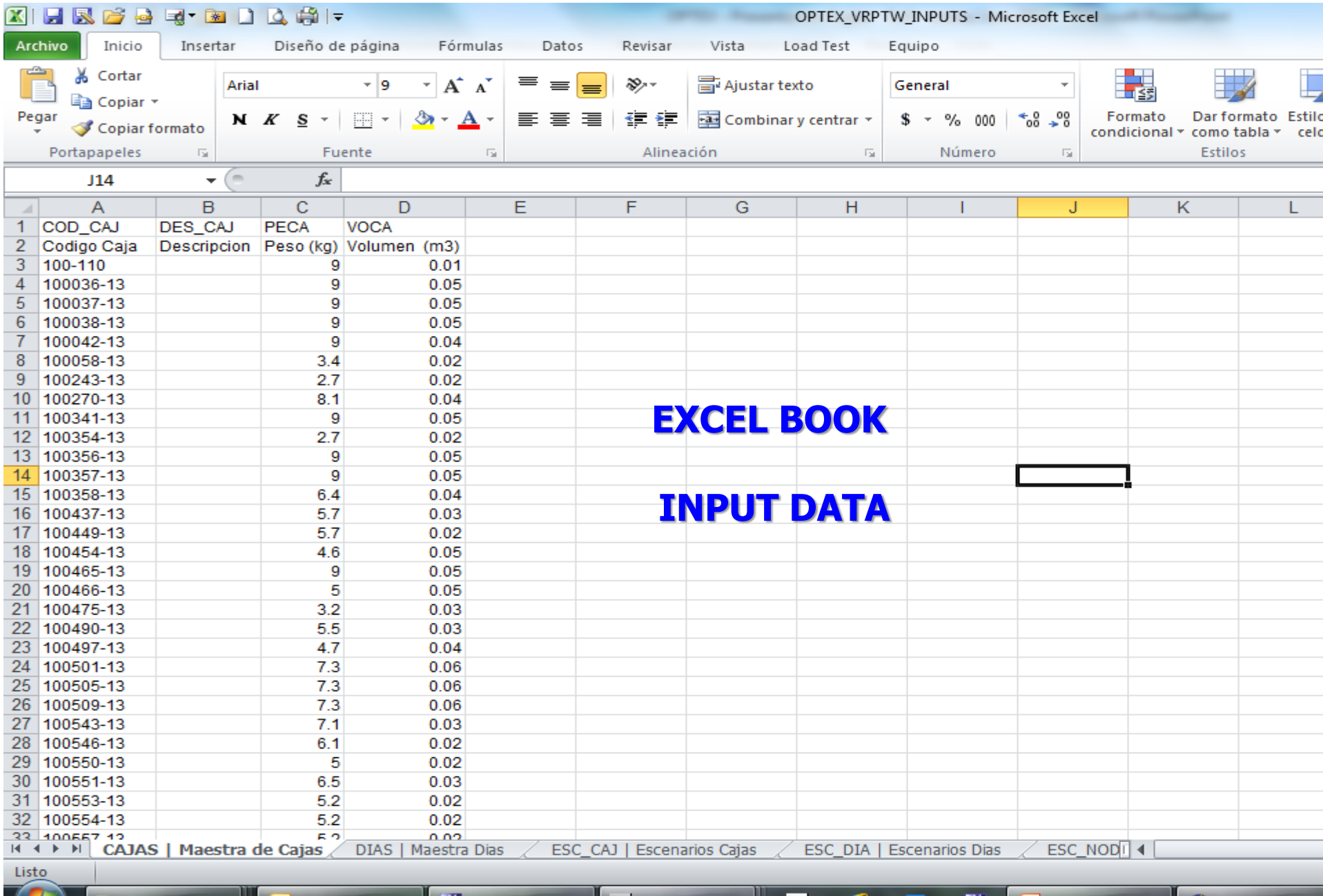
SOLVING
IN REMOTE SERVERS




EXCEL
INPUT DATA


OPTEX
OPTIMIZATION
SERVER


EXCEL
OUTPUT DATA



	A	B	C	D
1	COD_CAJ	DES_CAJ	PECA	VOCA
2	Codigo Caja	Descripcion	Peso (kg)	Volumen (m3)
3	100-110		9	0.01
4	100036-13		9	0.05
5	100037-13		9	0.05
6	100038-13		9	0.05
7	100042-13		9	0.04
8	100058-13		3.4	0.02
9	100243-13		2.7	0.02
10	100270-13		8.1	0.04
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13	100356-13		9	0.05
14	100357-13		9	0.05
15	100358-13		6.4	0.04
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17	100449-13		5.7	0.02
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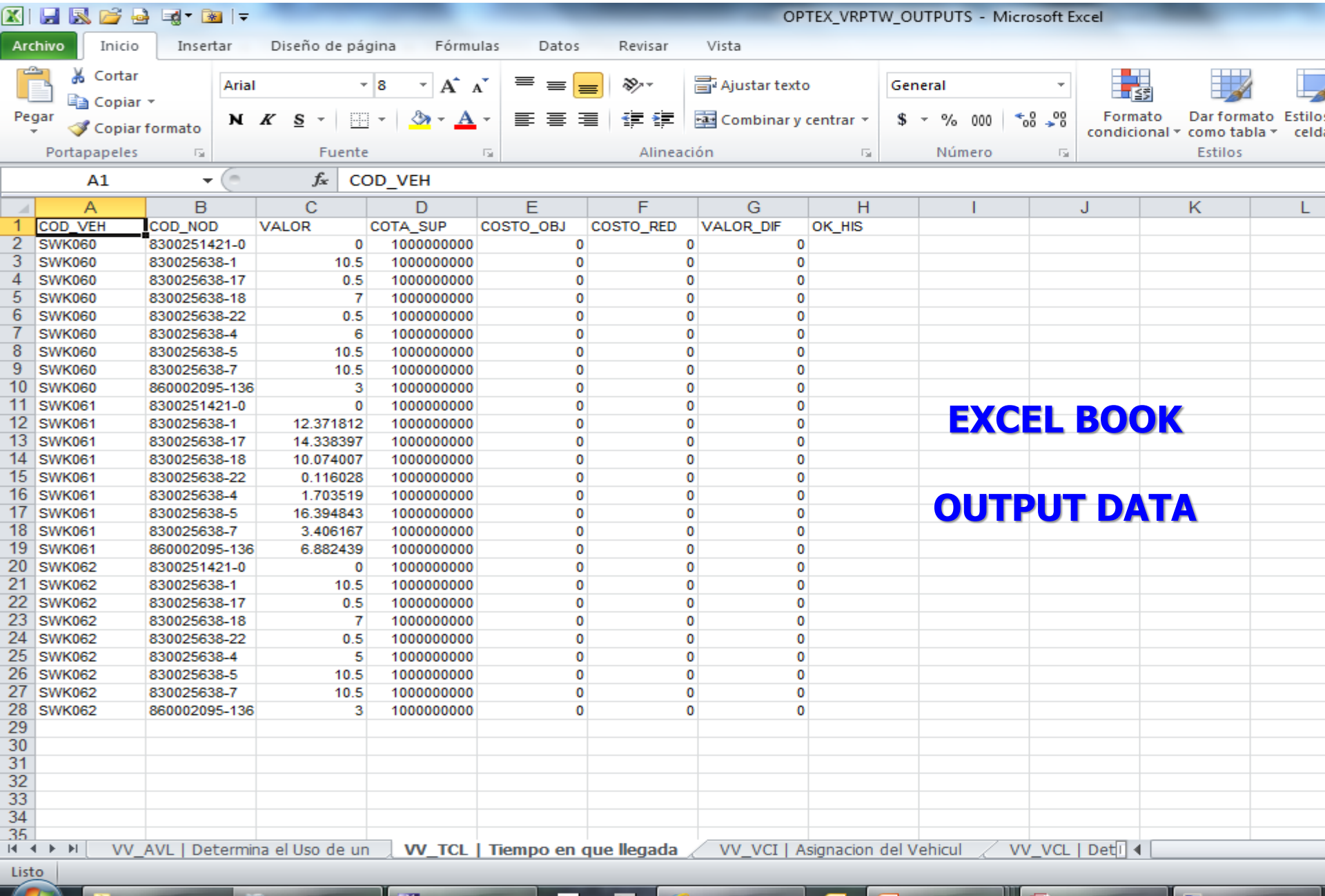
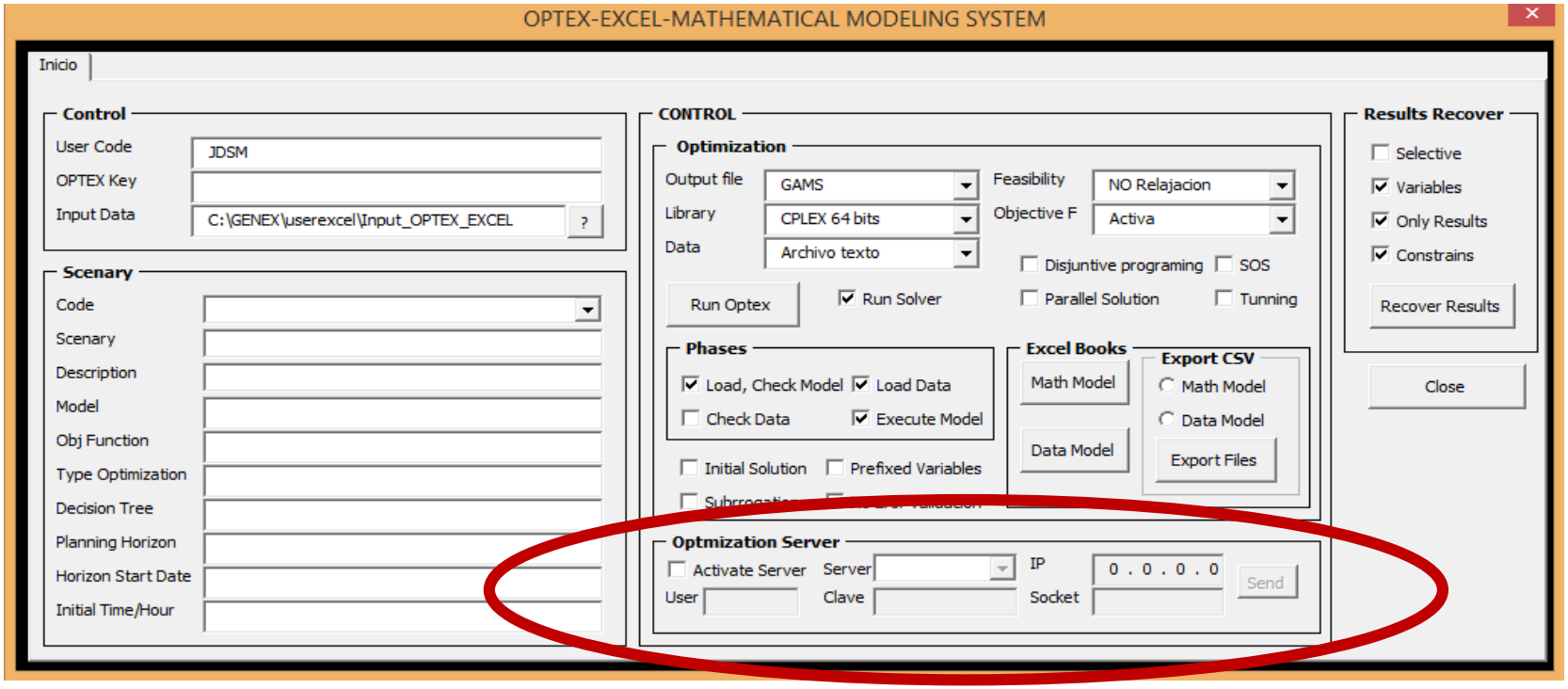
24	100501-13		7.3	0.06
25	100505-13		7.3	0.06
26	100509-13		7.3	0.06
27	100543-13		7.1	0.03
28	100546-13		6.1	0.02
29	100550-13		5	0.02
30	100551-13		6.5	0.03
31	100553-13		5.2	0.02
32	100554-13		5.2	0.02

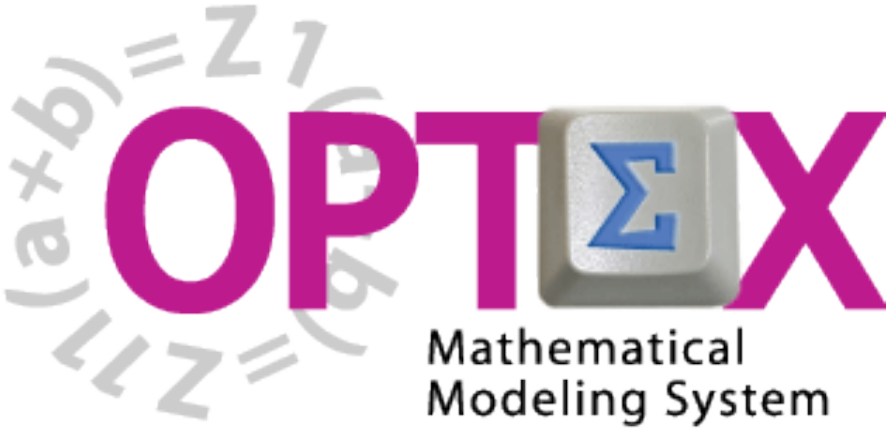


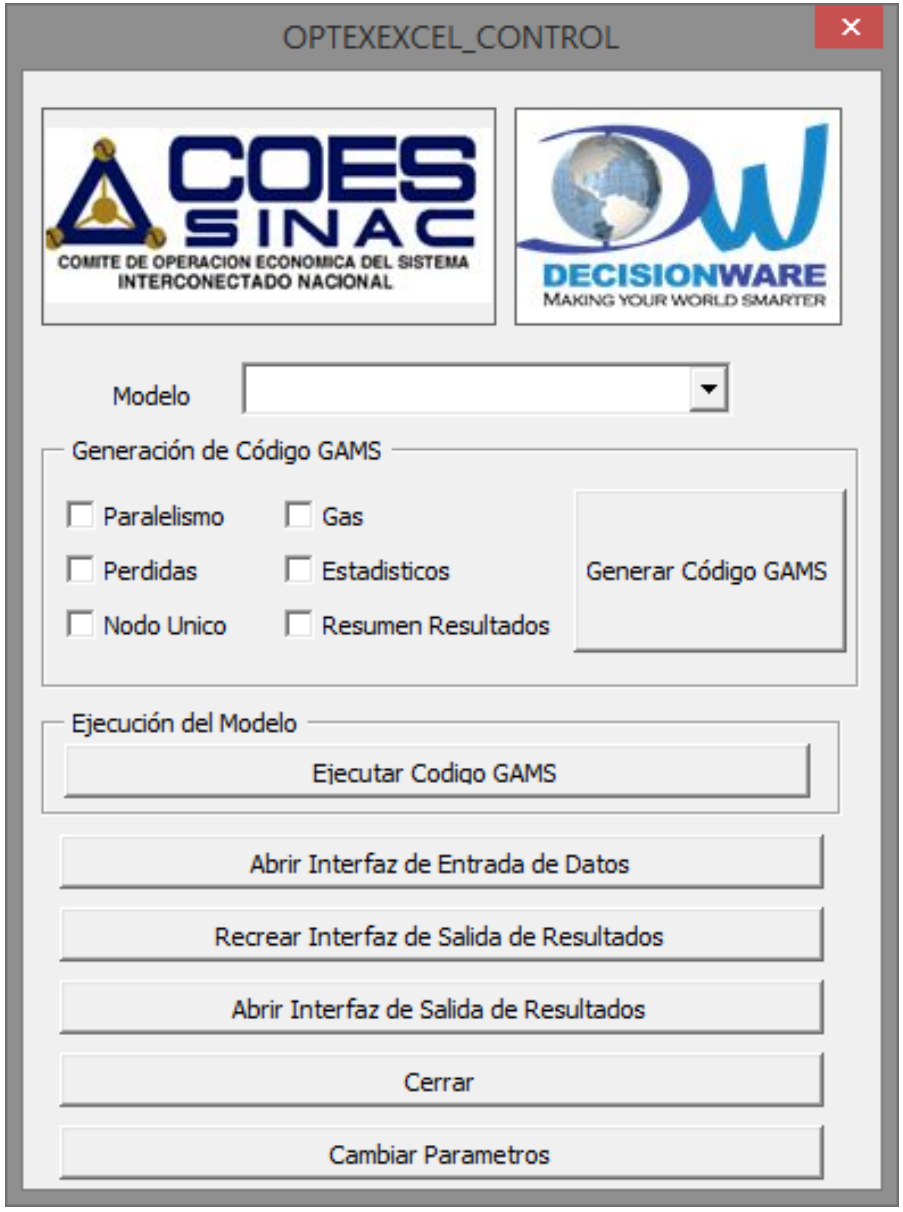
	A	B	C	D	E	F	G	H
1	COD_VEH	COD_NOD	VALOR	COTA_SUP	COSTO_OBJ	COSTO_RED	VALOR_DIF	OK_HIS
2	SWK060	8300251421-0	0	1000000000	0	0	0	
3	SWK060	830025638-1	10.5	1000000000	0	0	0	
4	SWK060	830025638-17	0.5	1000000000	0	0	0	
5	SWK060	830025638-18	7	1000000000	0	0	0	
6	SWK060	830025638-22	0.5	1000000000	0	0	0	
7	SWK060	830025638-4	6	1000000000	0	0	0	
8	SWK060	830025638-5	10.5	1000000000	0	0	0	
9	SWK060	830025638-7	10.5	1000000000	0	0	0	
10	SWK060	860002095-136	3	1000000000	0	0	0	
11	SWK061	8300251421-0	0	1000000000	0	0	0	
12	SWK061	830025638-1	12.371812	1000000000	0	0	0	
13	SWK061	830025638-17	14.338397	1000000000	0	0	0	
14	SWK061	830025638-18	10.074007	1000000000	0	0	0	
15	SWK061	830025638-22	0.116028	1000000000	0	0	0	
16	SWK061	830025638-4	1.703519	1000000000	0	0	0	
17	SWK061	830025638-5	16.394843	1000000000	0	0	0	
18	SWK061	830025638-7	3.406167	1000000000	0	0	0	
19	SWK061	860002095-136	6.882439	1000000000	0	0	0	
20	SWK062	8300251421-0	0	1000000000	0	0	0	
21	SWK062	830025638-1	10.5	1000000000	0	0	0	
22	SWK062	830025638-17	0.5	1000000000	0	0	0	
23	SWK062	830025638-18	7	1000000000	0	0	0	
24	SWK062	830025638-22	0.5	1000000000	0	0	0	
25	SWK062	830025638-4	5	1000000000	0	0	0	
26	SWK062	830025638-5	10.5	1000000000	0	0	0	
27	SWK062	830025638-7	10.5	1000000000	0	0	0	
28	SWK062	860002095-136	3	1000000000	0	0	0	
29								
30								
31								
32								
33								
34								
35								



OPTEX-EXEC-MMS FACILITATES TO SEND THE MODEL TO THE OPTEX-OPTIMIZATION REMOTE SERVER

CUSTOMIZING USER INTERFACES




OPTEXEXCEL_CONTROL
COES
SINAC
COMITE DE OPERACION ECONOMICA DEL SISTEMA
INTERCONECTADO NACIONAL
DECISIONWARE
MAKING YOUR WORLD SMARTER
Modelo
Generación de Código GAMS
Paralelismo
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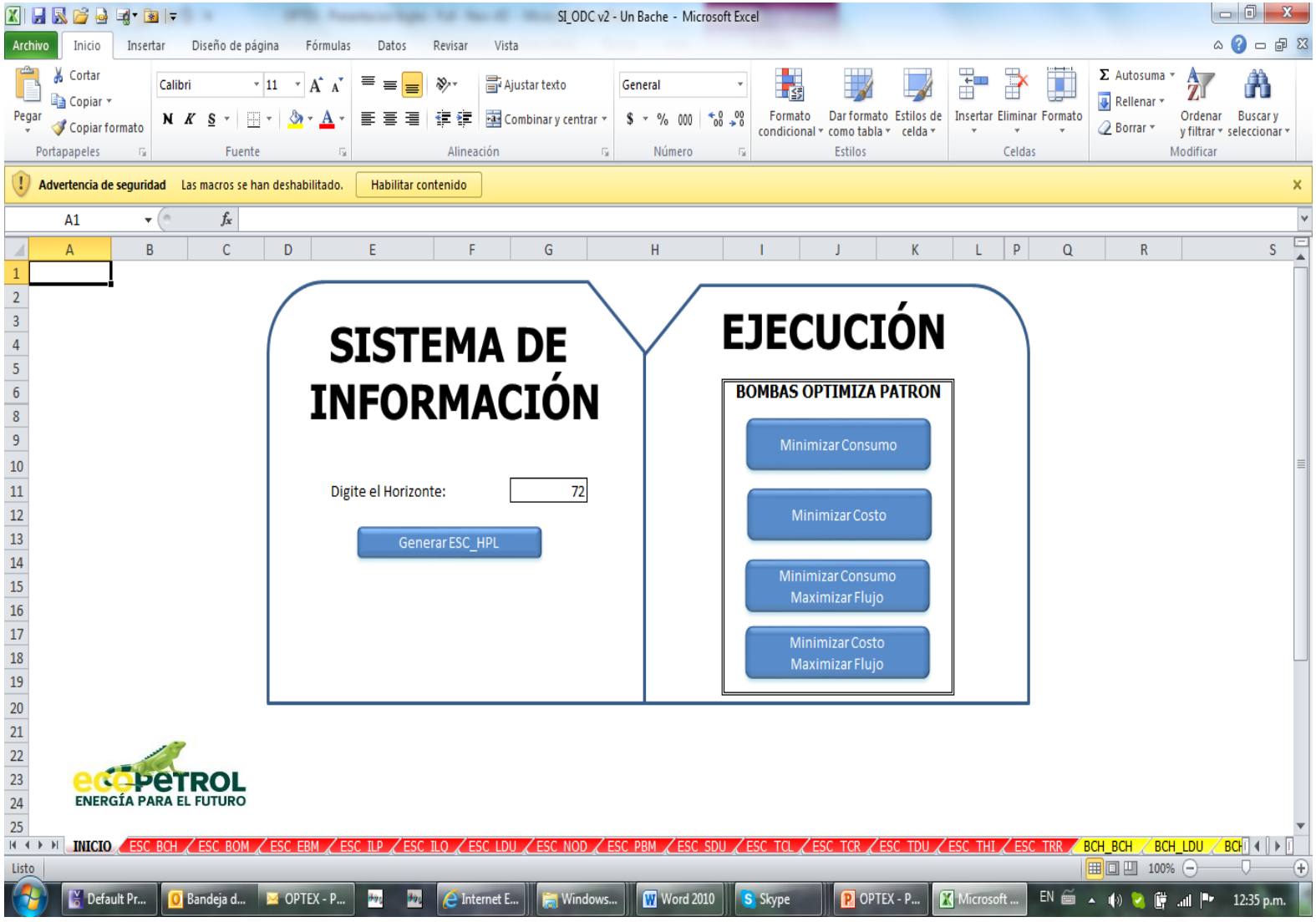
Nodo Unico
Resumen Resultados
Generar Código GAMS
Ejecución del Modelo
Ejecutar Codigo GAMS
Abrir Interfaz de Entrada de Datos
Recrear Interfaz de Salida de Resultados
Abrir Interfaz de Salida de Resultados
Cerrar
Cambiar Parametros


SI_ODC v2 - Un Bache - Microsoft Excel
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