



Pilot Project Implementation

A Business Case for a Centralized Plant Information System for Abengoa

Javier Rodríguez Roncero
Telvent



Pilot Project Implementation

A Business Case for a Centralized Plant Information System for Abengoa Bioenergy



Agenda

- **Telvent's Company Profile**
- **Abengoa Bioenergy's Company Profile**
- **Business Challenges**
- **Pilot Project – Scope of Work**
- **Pilot Project – Technical Solution**
- **Resulting Benefits**
- **Future Plans**
- **Questions**





Telvent's Vision

Telvent (Nasdaq: TLVT), the Global RealTime IT Company, specializes in high value add solutions and services in four industry sectors (Energy, Traffic, Transport and Environment). Its technology allows high performing companies to make real-time business decisions using data acquisition, control, and advanced operational applications, providing secure actionable information delivery to the enterprise.

Spain



Madrid



Seville

North America



Calgary



Houston



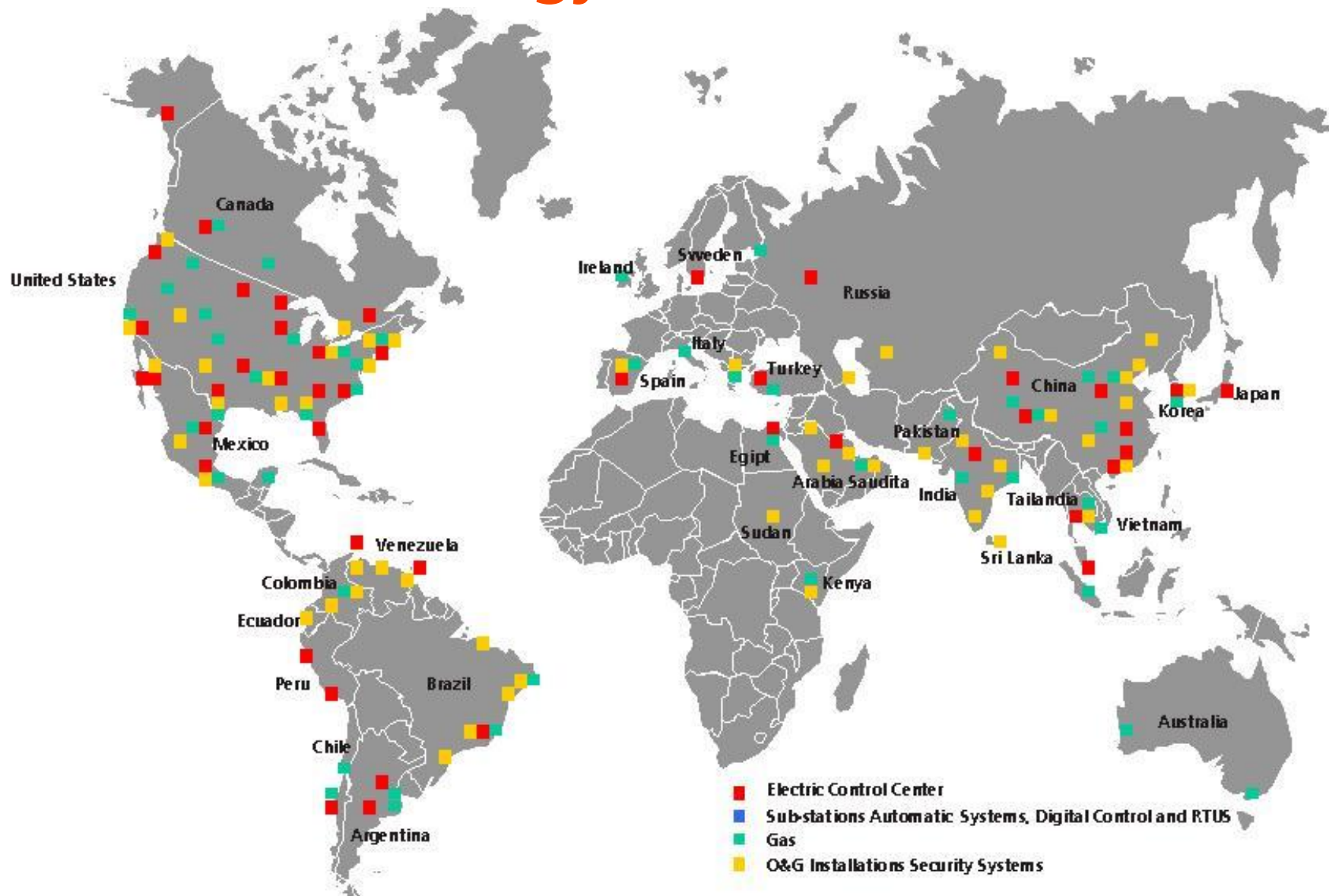
Financial Strength. M€

Key financial facts	2004
Revenues	312.6
EBITDA	38.8
Net income	10.1
Cash flow from operations	25.1
Shareholders' equity	136.0
Net debt	24.0
ROIC after taxes (%)	27.5%

Year 2005 revenues increase 28.7 % to 402.4 M€
(Unaudited Financial Result)



Energy Installations





Blue Chip Client Base

Energy



Traffic



Beijing Capital Highway Development



Transport



Environment





Telvent's Solutions Help to . . .

- Manage more than **60% of hydrocarbon movements** through North and Latin American pipelines
- Transport and distribute more than **140,000 GWh**, providing electricity to more than **80 million people**
- Control vehicle traffic at more than **6,600 intersections** handling more than **170 million drivers** per day
- Manage the transportation of more than **two billion train and subway passengers** every year





Telvent's Solutions Help to . . .

- Manage the flow of more than **5 million people** per day, over more than **5,400 miles of motorways**, divided highways and tunnels
- Manage the distribution of more than **12 billion cubic feet of natural gas**, supplying more than **94 million people**
- Generate more than **12,500 Gigawatthours** of electric energy
- Manage the safe and efficient departure and arrival of more than **60 million passengers** per year at more than **70 airports**





Agenda

- Telvent's Company Profile
- Abengoa Bioenergy's Company Profile
- Business Challenges
- Pilot Project – Scope of Work
- Pilot Project – Technical Solution
- Resulting Benefits
- Future Plans
- Questions





Abengoa Bioenergy

Abengoa Bioenergy and Telvent are subsidiaries of Abengoa S.A.

Abengoa Bioenergy is the fifth largest producer of ethanol in the United States, the largest international producer of ethanol, and the only producer of ethanol in Spain.

Abengoa Bioenergy owns and operates five facilities throughout the United States and Europe with a total production capacity of 190 million gallons; three additional plants are under construction in Spain (53 Mgal.), USA (88 Mgal.) and France.





Frequently Asked Questions

What is "Bioenergy"?

- Bioenergy is **energy produced from renewable biomass**, including not only grains, but also cellulosic materials such as corn and milo stalks, grass clippings, and wood and paper waste.



What is Bioethanol?

- **Bioethanol is an alcohol product produced from corn, sorghum, potatoes, wheat, sugar cane, even biomass such as cornstalks and vegetable waste.** When combined with gasoline, it increases octane levels while also promoting more complete fuel burning that reduces harmful tailpipe emissions such as carbon monoxide and hydrocarbons.





Abengoa Bioenergy Facilities (Europe)



Bioetanol Galicia

Crta. Nacional, Km 634

15310 Teixeira-Curtis (La Coruña), Spain

176 million liters (46 million gallons) of fuel ethanol



Ecocarburantes Españoles

Crta. Nacional, Km 343

Valle de Escombreras

30350 Cartagena (Murcia), Spain

150 million liters (39 million gallons) of ethanol



Biocarburantes Castilla y León *(In Production)*

Carretera Alba de Tormes, km. 1

Carbajosa de la Sagrada

37188 (Salamanca), Spain

200 million liters (53 million gallons) of ethanol



Lacq *(Under Construction)*

South of France



Abengoa Bioenergy Facilities (USA)



York

1414 Road O

York, NE 68467 USA

189 million liters (50 million gallons) of fuel alcohol



Colwich

P.O. Box 427

523 East Union Ave.

Colwich, KS 67030 USA

95 million liters (25 million gallons) of fuel alcohol



Portales

1827 Industrial Dr.

Portales, NM 88130 USA

115 million liters (30 million gallons) of fuel alcohol



Ravenna *(Under Construction)*

Ravenna County of Bufalo

Nebraska

338 million liters (88 million gallons) of fuel alcohol



Agenda

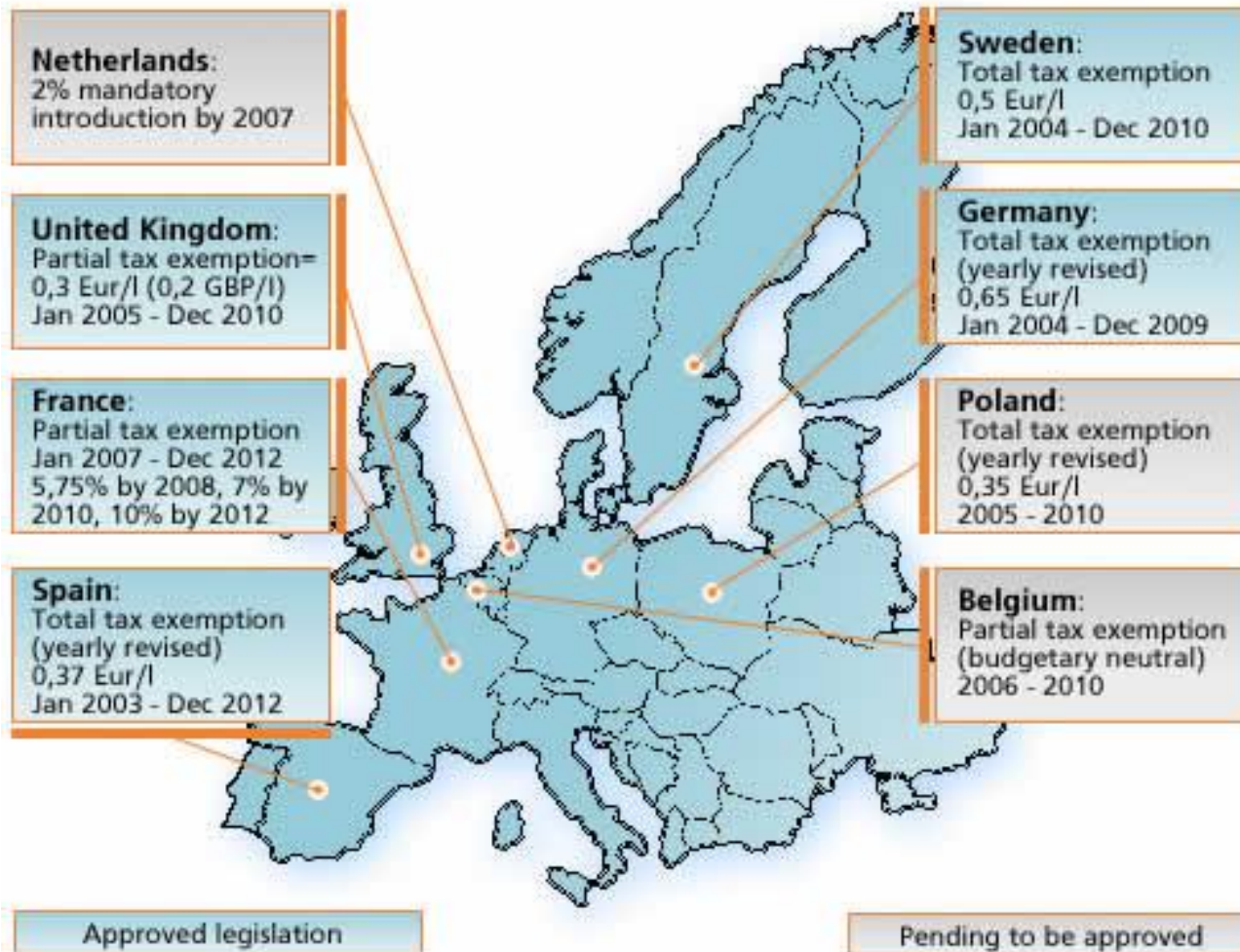
- Telvent's Company Profile
- Abengoa Bioenergy's Company Profile
- Business Challenges
- Pilot Project – Scope of Work
- Pilot Project – Technical Solution
- Resulting Benefits
- Future Plans
- Questions





EU Market Overview

- Strong future growth in demand based on EU legislation.





Business Challenges

A key element of the Abengoa Bioenergy business plan is to cover the EU demand for bioethanol exports for the next five years.

- **To be competitive in the supply of alternative fuels, it is essential for a producer to:**
 - be reliable and flexible.
 - have the capacity to pump a large volume of high-quality, fuel-grade bio-ethanol into the market.
 - improve the production process.
 - increase the operating efficiency of its plants.



Key Drivers in Implementing PI

- **Easy information location and access**
 - For all users: CEO, Planner, Operator, etc.
- **Automation:** changes immediately sent to users
- **Visual**
 - Conveys significance of information instantly
 - Information in context, not just data
- **Easy to access & deliver**
 - Spans numerous back-end sources
 - Addresses unique needs of different users



Typicall users

- Need easy access to information in lots of systems
- Can't be trained on every system
- Can't have every system installed



Agenda

- Telvent's Company Profile
- Abengoa Bioenergy's Company Profile
- Business Challenges
- Pilot Project – Scope of Work
- Pilot Project – Technical Solution
- Resulting Benefits
- Future Plans
- Questions





Pilot Project – Scope of Work



Bioetanol Galicia

Crta. Nacional, Km 634

15310 Teixeira-Curtis (La Coruña), Spain

176 million liters (46 million gallons) of fuel ethanol

PI System

TELVENT

PI Users



4 Normal Users
1 Advanced User

Reports

Shift Reports:

- Cereal Plant Daily Report
- Cereal Plant Weekly Report
- AV Plant Daily Report
- AV Plant Weekly Report

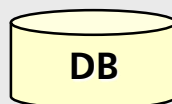
Internal Reports:

- Cogeneration Data
- Reactives
- Process Data

Lab Report:

- Daily Lab Report

PI Server OSIsoft



PI Data Access Pack
PI Server

DCS Tags

1

DCS

Maintenance
Parameters

2

Maintenance
System

Analysis Results

3

Laboratory

Stock
Prices

4

ERP

Meter Readings

5

Electric &
Gas Meters

Truck / Load Data

6

Weighbridge

Consumptions
Measurements

7

Manual
Inputs





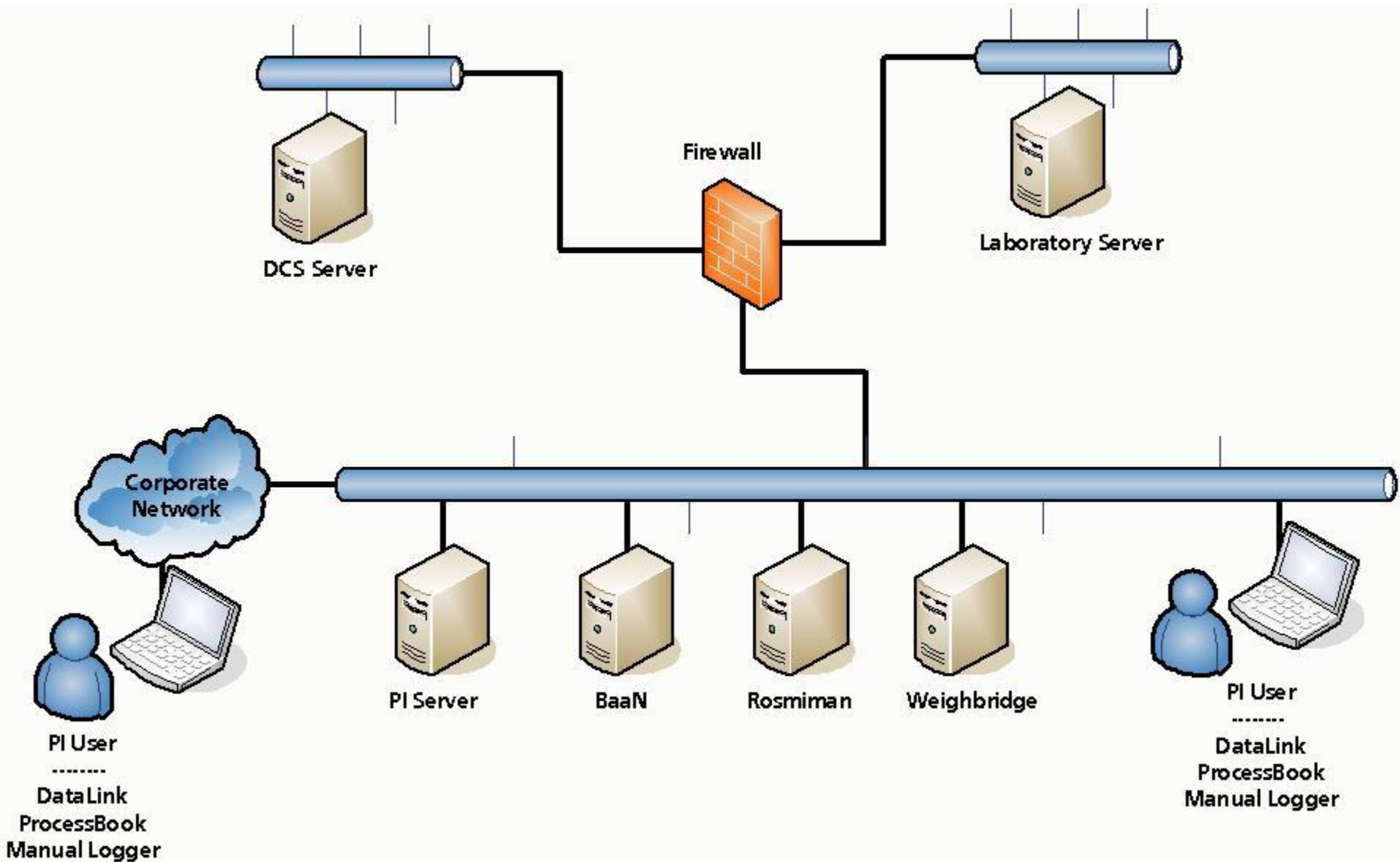
Agenda

- Telvent's Company Profile
- Abengoa Bioenergy's Company Profile
- Business Challenges
- Pilot Project – Scope of Work
- Pilot Project – Technical Solution
- Resulting Benefits
- Future Plans
- Questions





Pilot Site System Architecture





List of Products

- **Server** side:
 - PI Server
 - PI Data Access Pack (DAP)
 - Bailey System 6 Interface – NT Intel
- **Client** side:
 - PI Process Book
 - PI Manual Logger
 - PI Data Link
 - PI OLEDB Provider





List of Interfaces

- **PI Interfaces:**
 1. Bailey System 6 Interface – NT Intel (Distributed Management System)
- **Custom Developed Interfaces (C#):**
 2. PI Rosmiman (Maintenance Management System)
 3. ChemStation PI (Laboratory)
 4. Baan PI (Enterprise Resource Planning)
 5. Tarsys PI (Meter Reading Concentrator)
 6. Weighbridge PI (Weighbridge)



Baan



Microsoft®
.net

Microsoft®
Visual Studio.net



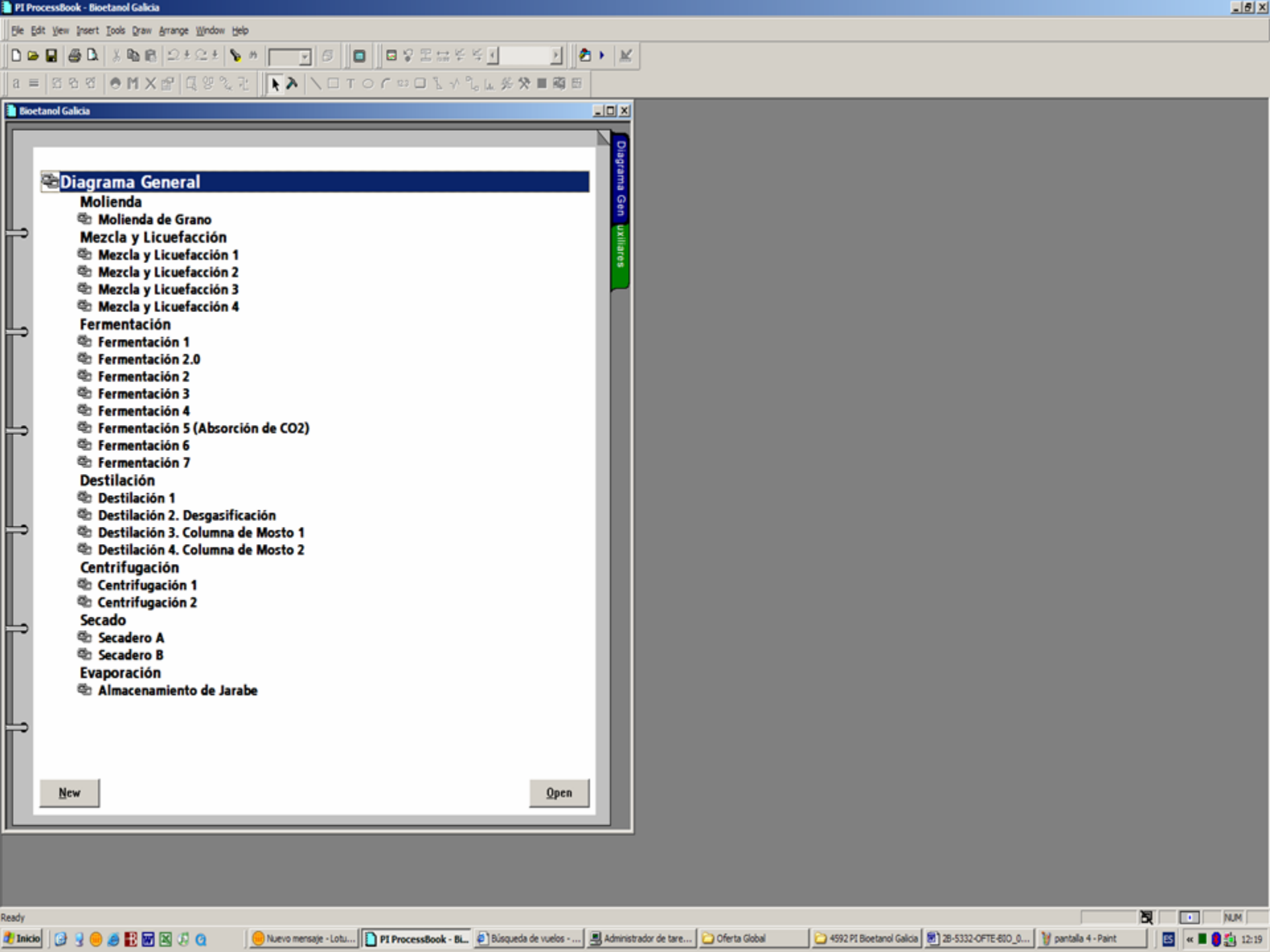
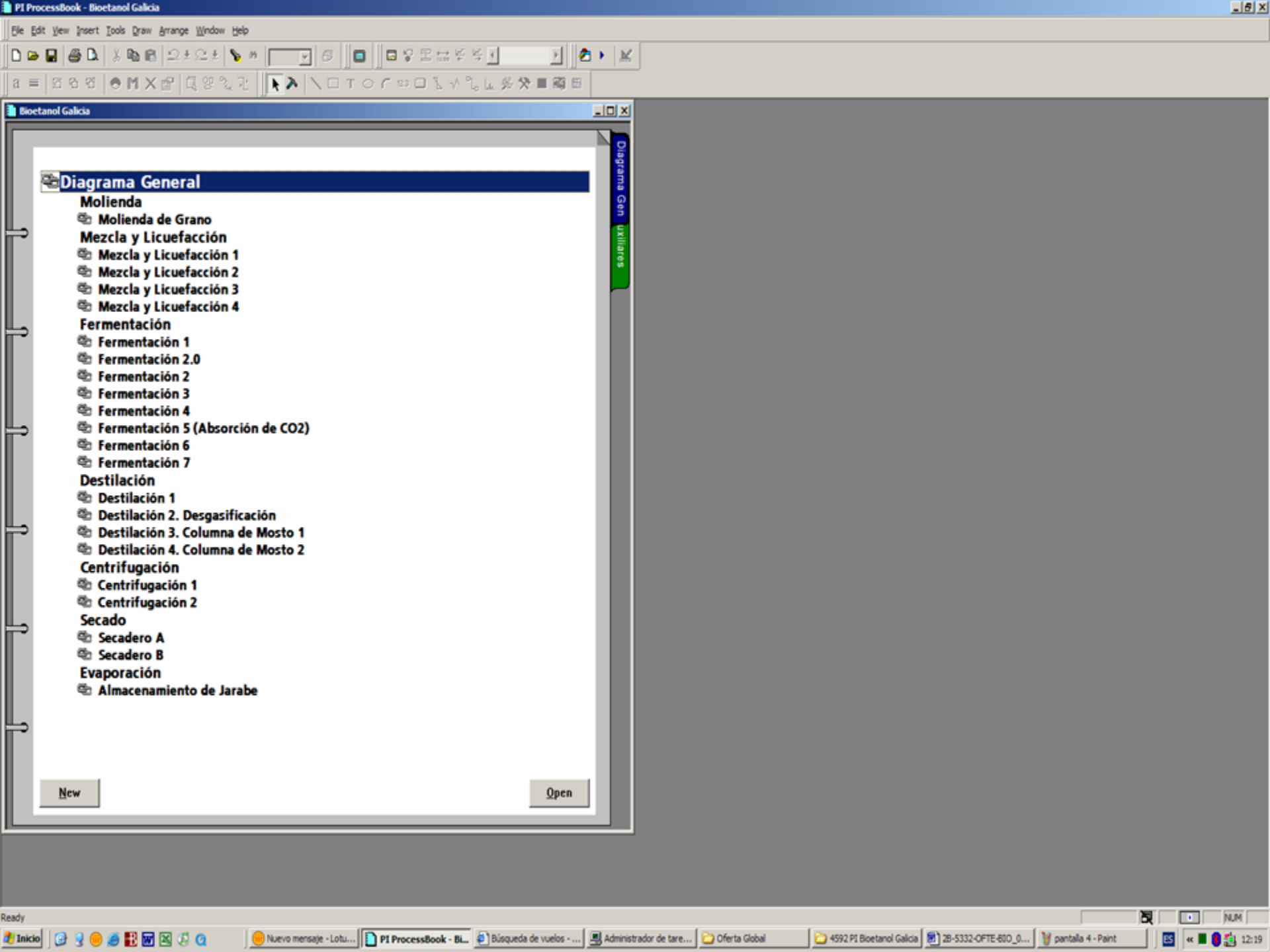
Distributed Control System (DCS)

- **PI-Server Interface to ABB Conductor NT:** Distributed Control System (DCS)
 - **ABB Data Access Server.** Installed in the DCS server.
 - **Bailey System 6 Interface – NT Intel,** standard PI Interface (ref. PI-IN-BA-SYS6-NTI), to ABB Conductor NT with ABB Data Access Server.
- **PI-Process Book:** corporate access to Real-Time and Historical data from the DCS.



- **PI-Server Tag Configuration:**

[illegible]

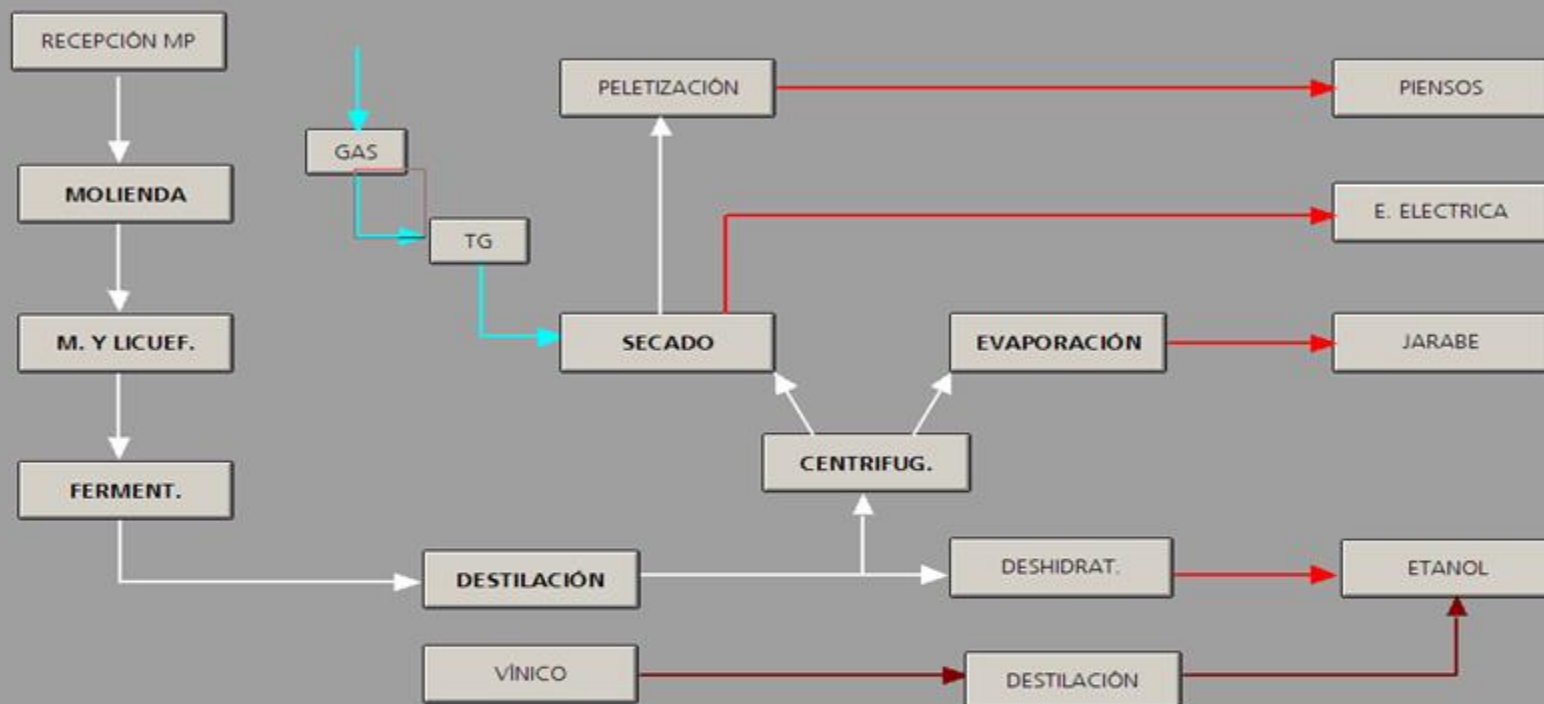


ABENGOA BIOENERGY

Bioetanol Galicia

TELVENT

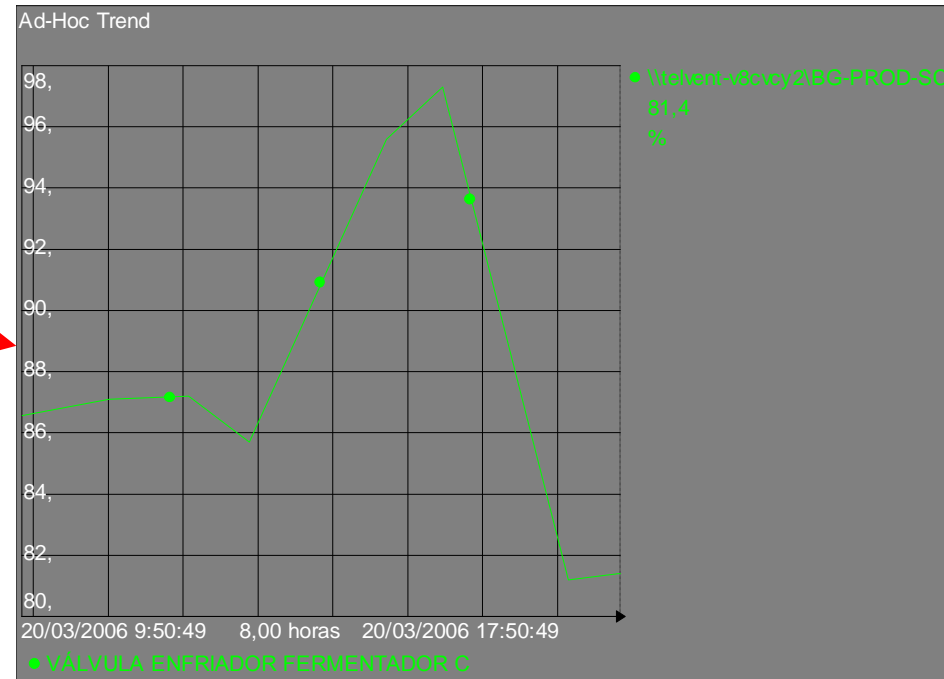
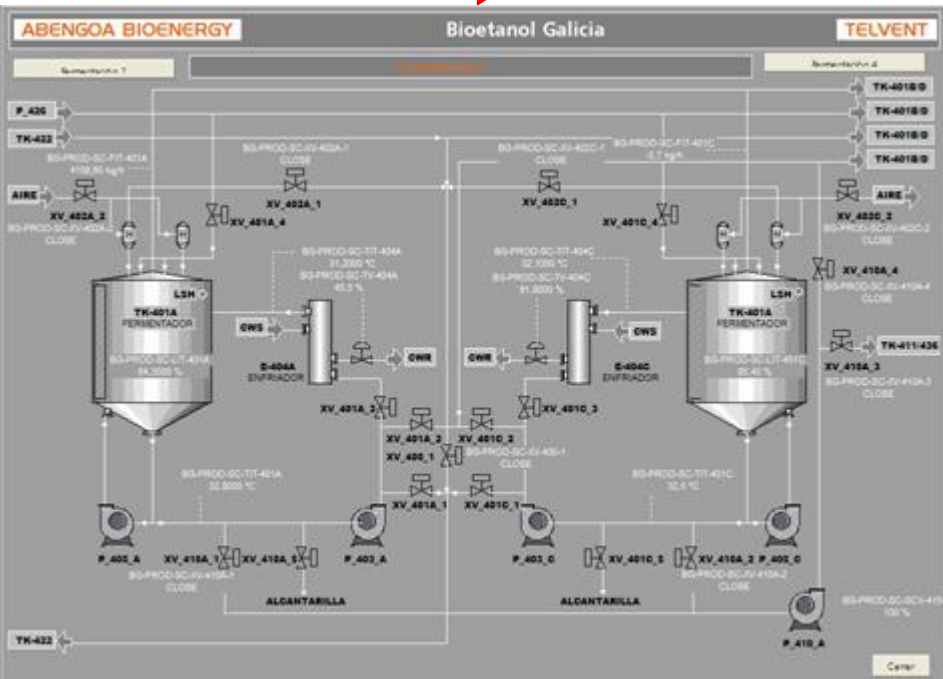
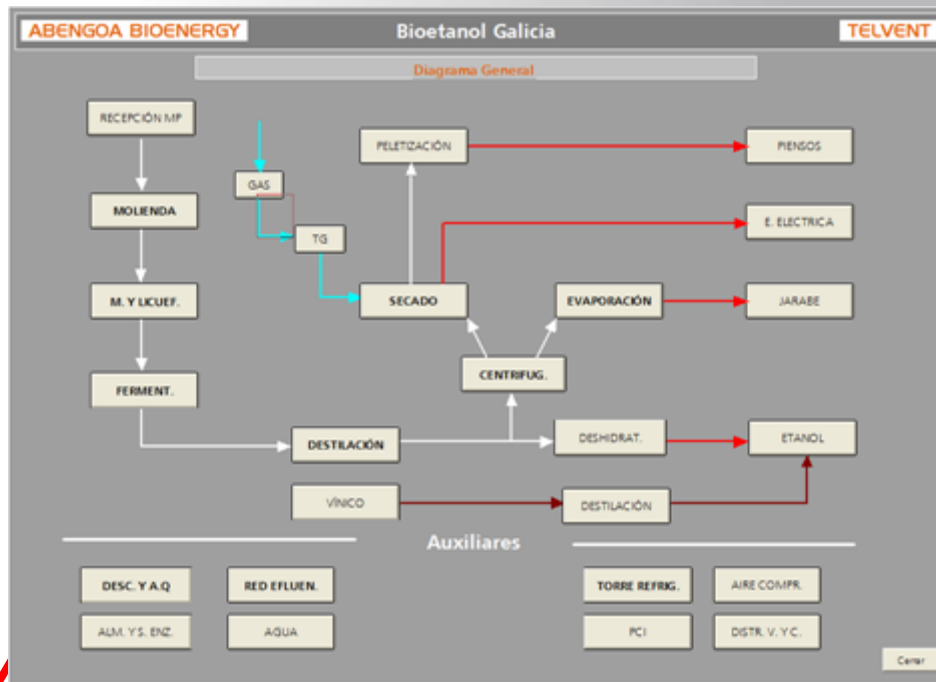
Diagrama General

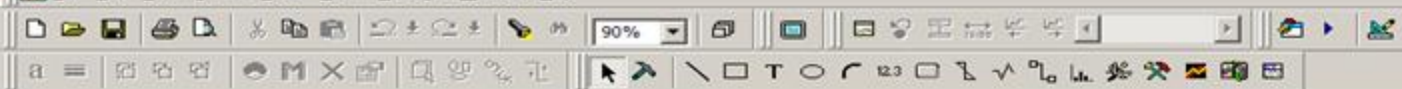


Auxiliares



Cerrar





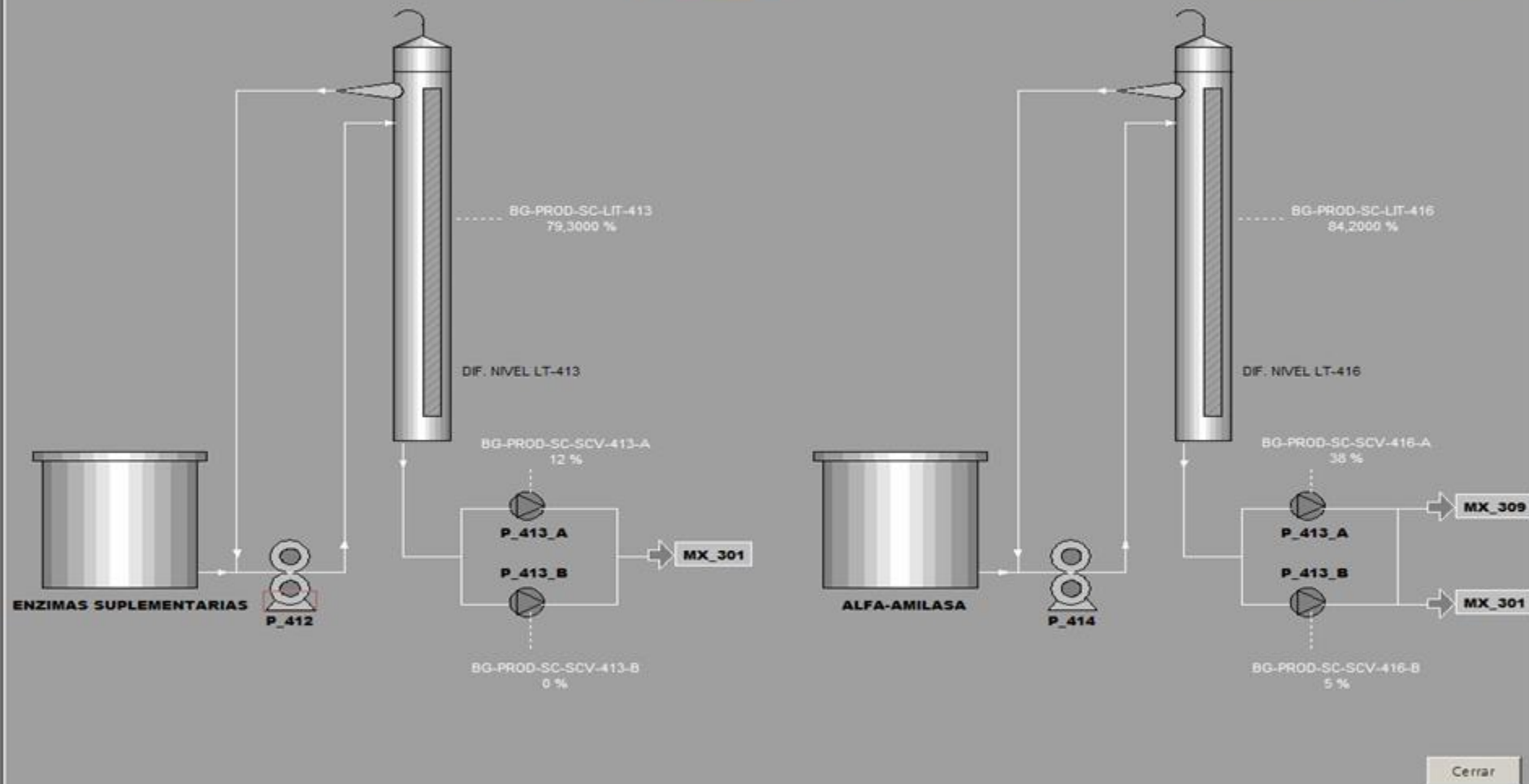
ABENGOA BIOENERGY

Bioetanol Galicia

TELVENT

Incubación 1

Fermentación 2.0



ABENGOA BIOENERGY

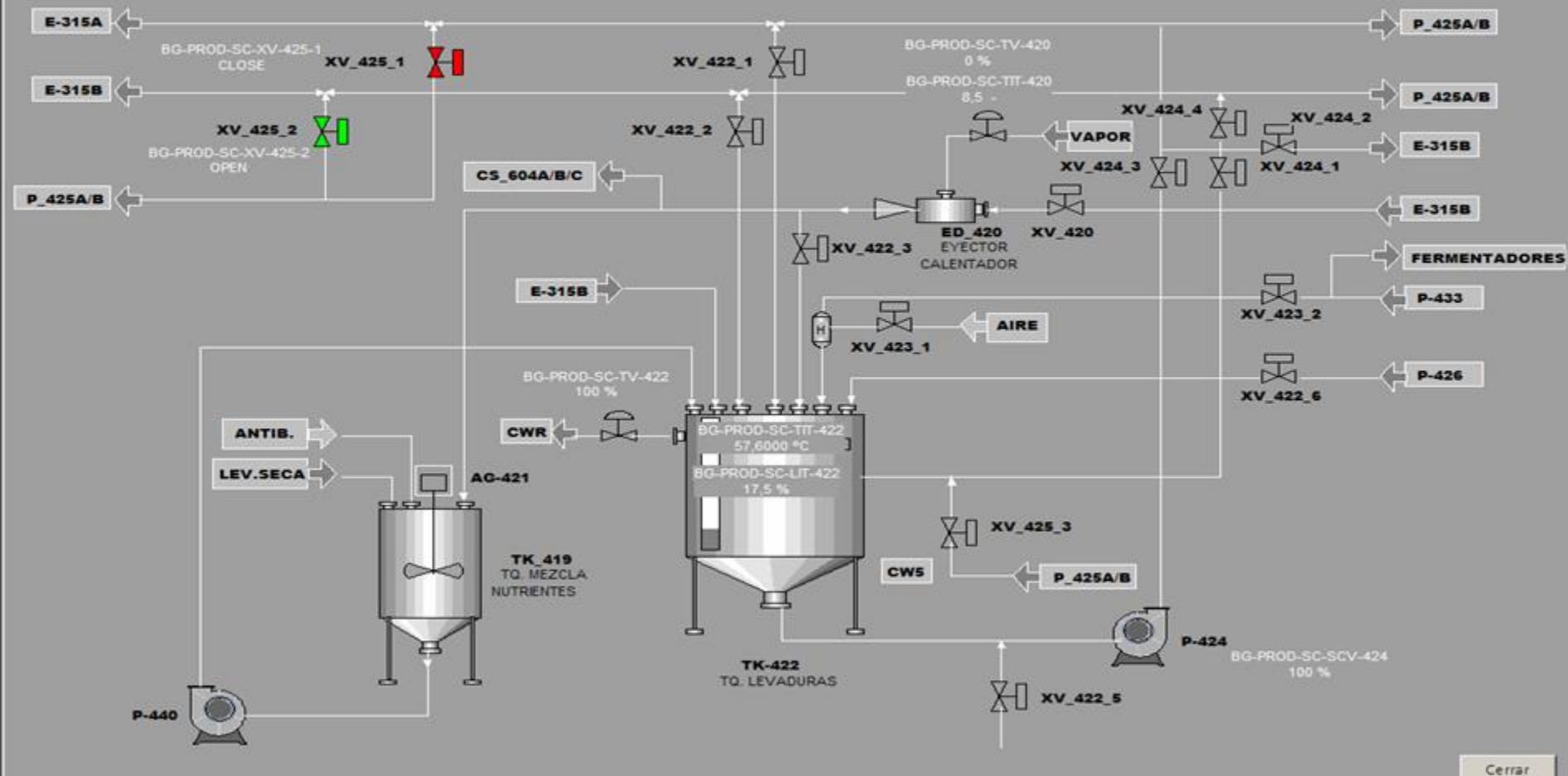
Bioetanol Galicia

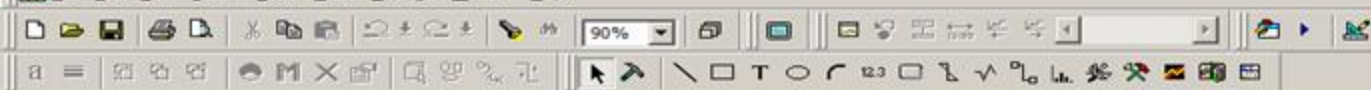
TELVENT

Fermentación 2.0

Handwritten Questions 2

Fermentación 3

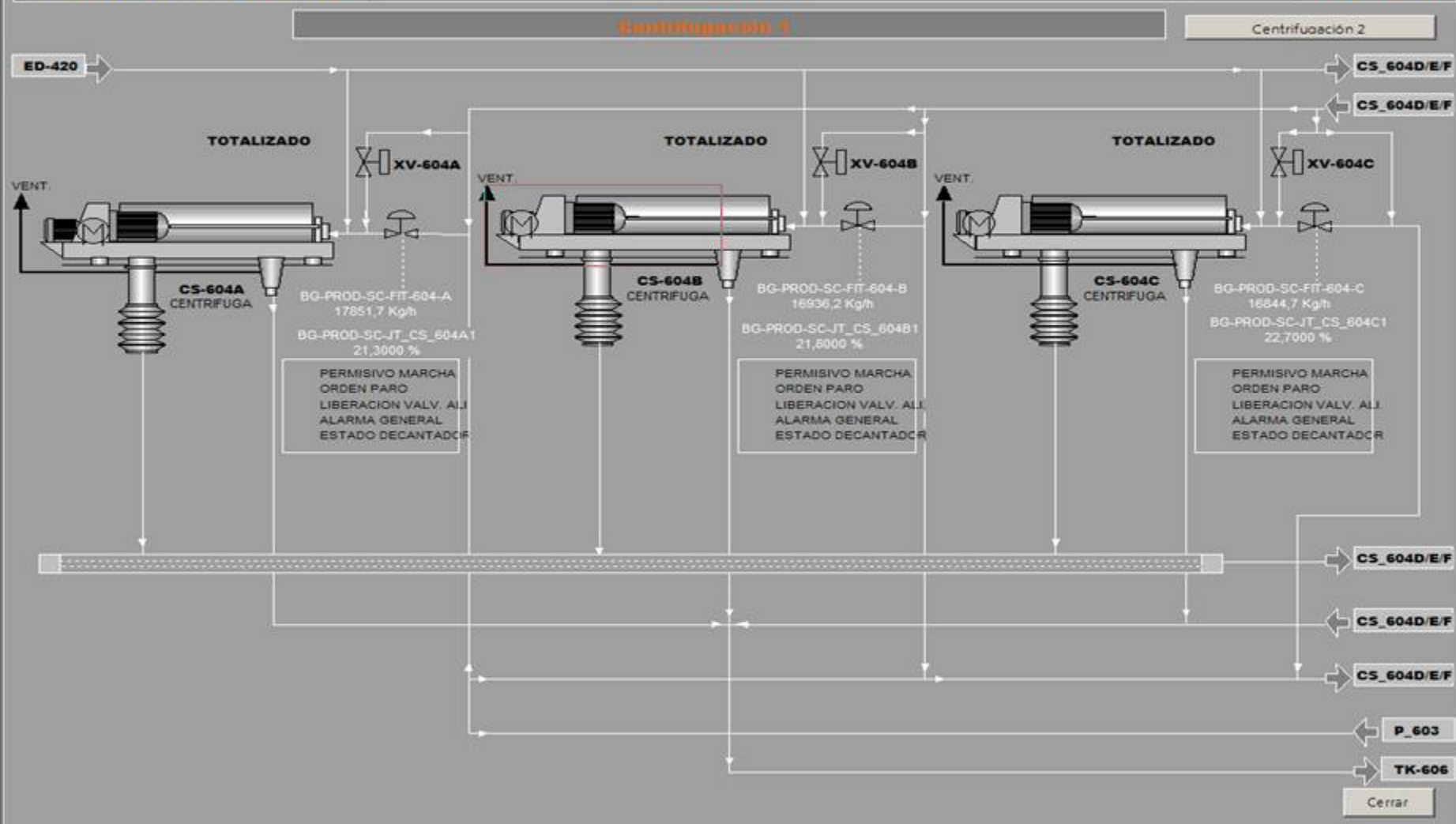




ABENGOA BIOENERGY

Bioetanol Galicia

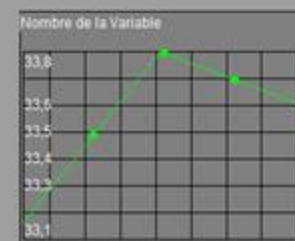
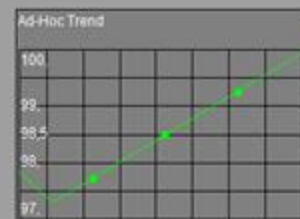
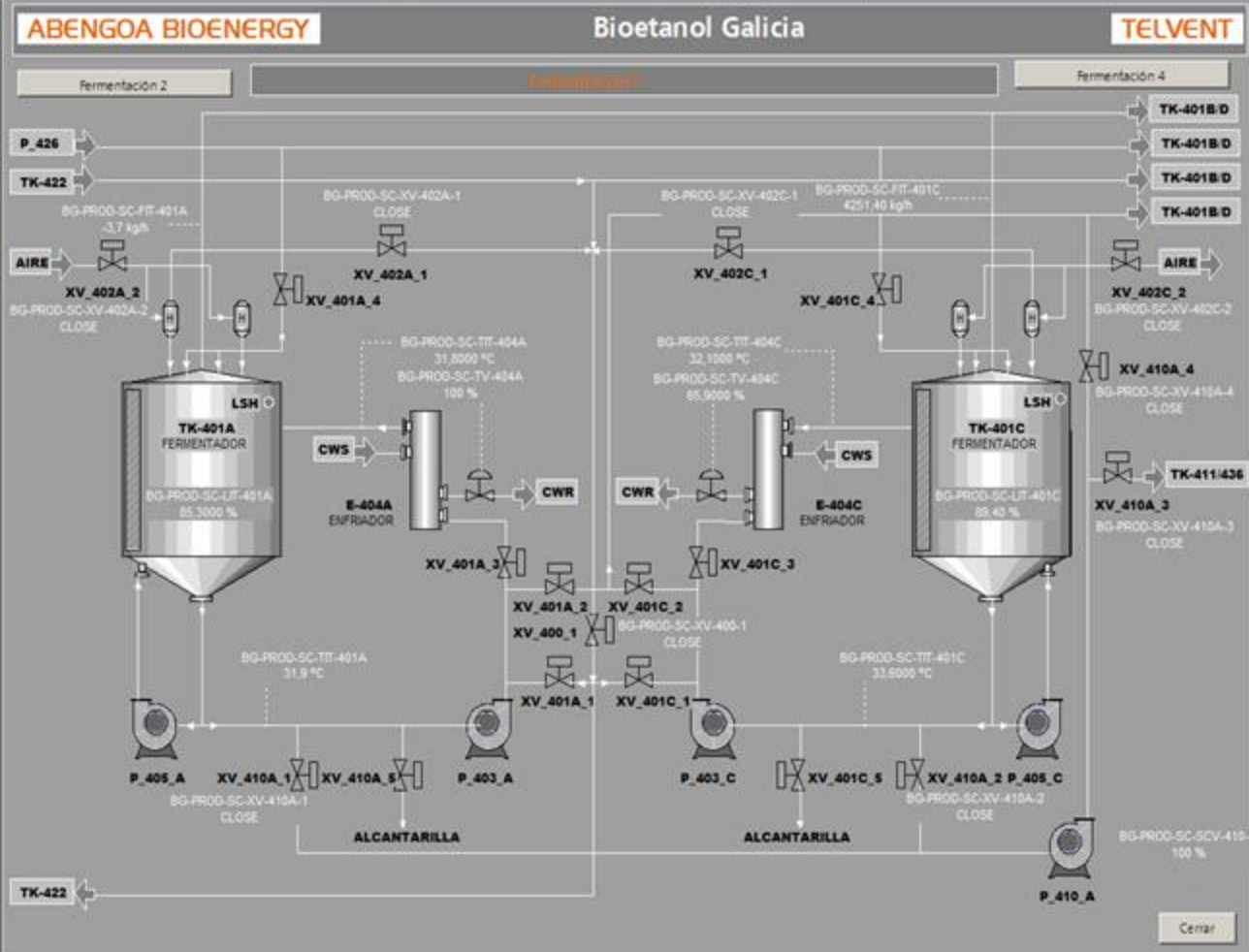
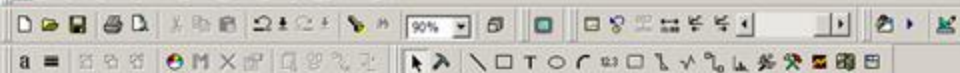
TELVENT





PI ProcessBook - [FERMENTAC30K11026]

File Edit View Insert Tools Draw Arrange Window Help



Ready

Server Time

NLM

Inicio

Franco Diaz Andres

PI ProcessBook - [FERME...

Búsqueda de vuelos - Dis...

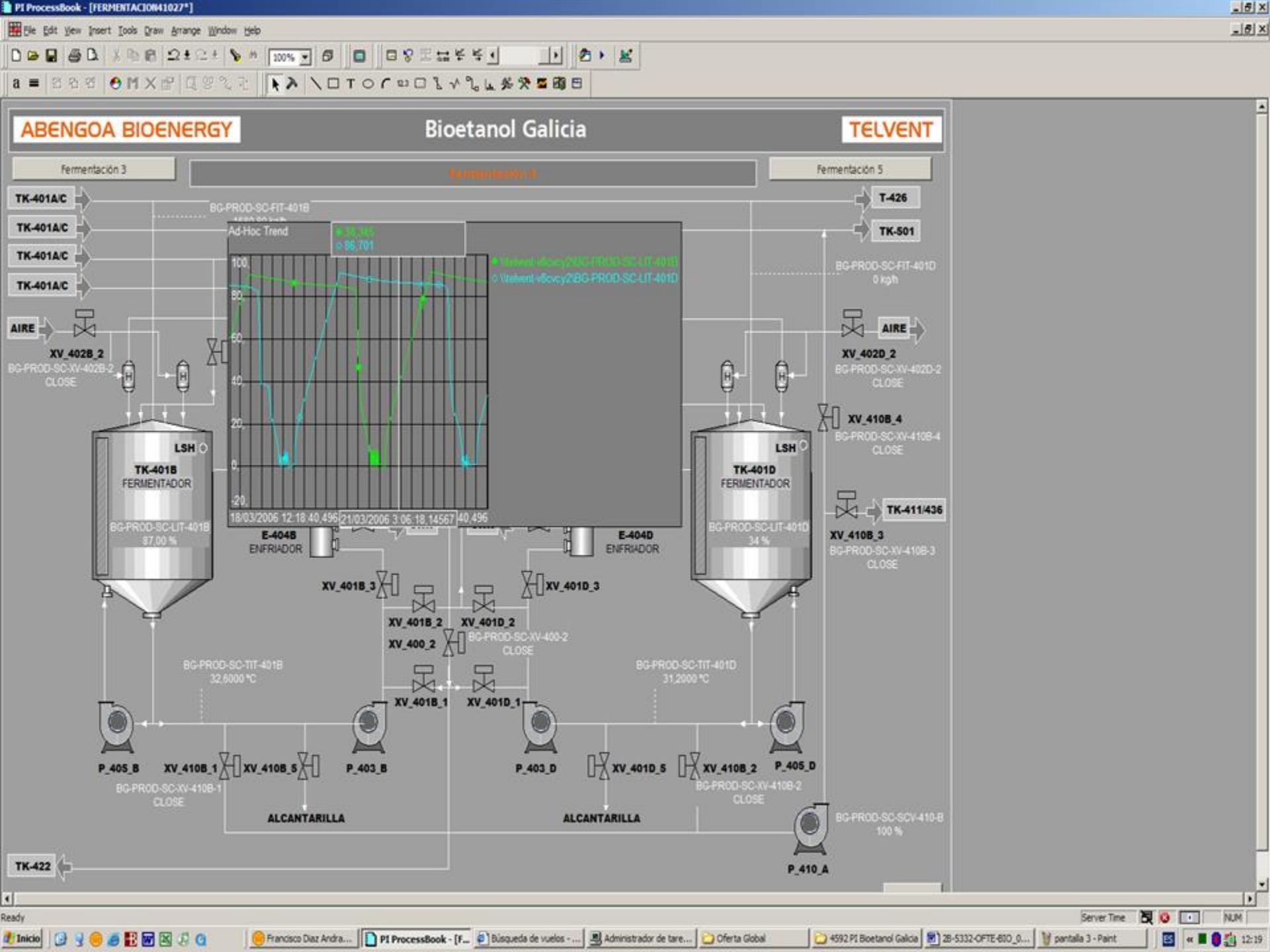
Administrador de tareas ...

Oferta Global

4592 PI Bioetanol Galicia

2B-5332-OPE-810_02...

12:14





Maintenance Management System (MMS)

- **Condition Based Maintenance:** Proactive Maintenance Management
 - Information relevant to Maintenance Department is acquired on-line through PI Rosmiman Custom Interface. The data is updated in the Maintenance Management System (MMS) Database. When these values exceed certain predefined levels (low and high), the MMS automatically generates work requests for maintenance people.
 - Maintenance limits are managed by the Maintenance Department, and may differ from the operational limits usually managed by the Operations Department (DCS).





Maintenance Management System (MMS)

- List of parameters monitored by the MMS:

TAG	Description	Measurement Frequency	Engineering Units	Range
TIC-1401	Temperature at Cooling Tower	Hourly	°C	0-100
JT_CS_604A1	Torque at Centrifuge A	Hourly	%	0-100
JT_CS_604B1	Torque at Centrifuge B	Hourly	%	0-100
JT_CS_604C1	Torque at Centrifuge C	Hourly	%	0-100
JT_CS_604D1	Torque at Centrifuge D	Hourly	%	0-100
TIT-404-A	Temperature at Cooler Fermentation Output A	Hourly	°C	0-100
TIT-404-B	Temperature at Cooler Fermentation Output B	Hourly	°C	0-100
TIT-422	Temperature at Yeast Tank	Hourly	°C	0-100
.....
.....



Maintenance Management System (MMS)

- MMS – PI Tag configuration:

ROSMIMAN 4

Señales PI (Plant Information)

Código:	12
Descripción:	Temperatura tanque de levadura
Tag P.I.:	TIT-422
Código:	MTK-0422 Tanque de propagación
Valor:	75
Fecha:	21-03-2006
Hora:	11.08.10
Mínimo:	0
Máximo:	100

BIOETANOL GALICIA, S.A. Idasa Sistemas S.L.

ure at

<

2



Maintenance Management System (MMS)

- MMS – Automatic work request generation

ROSMIMAN 4

Maestro de Avisos

Nº Aviso: 12 Fecha: 21-03-2006 11.27 PENDIENTE

Propietario: 0 SIN ASIGNAR

Receptor: 0 SIN ASIGNAR

Demandante: Telf.:

Descripción: Señal PI fuera de rango

Detalle Incidencia o Avería: Tag: TIT-422 (Temperatura tanque de levadura) Valor: 102

Datos Mantenimiento

Equipo/Inst.: MTK-0422 Tanque de propagación

Próximo a:

Cuenta: 0 Sin Asignar

Criticidad: 0 Normal

Incidencia: 0 Sin asignar

Servicio: 0 Sin Asignar

Observac.:

Causa Anul.: 0 Sin Asignar

PdS asignada: 0 Oferta asignada: 0

Crear PdS

El Equipo Seleccionado contiene 1 avisos pendientes.

ROSMIMAN 4

BIOETANOL GALICIA, S.A.

Idasa Sistemas S.L.

– TIT-422:
Temperature at
Yeast Tank is
out of range.



Laboratory

- **Liquid Chromatographs – List of variables**



- Glucose
- Maltose
- DP3
- Glycerol
- Acetic acid
- Lactic acid
- Succinic acid
- Ethanol

- **Chromatograph software (ChemStation) generates a xls (MS Excel) file with the results of the analysis for each unit.**



Enterprise Resource Planning

- **BaaN ERP – List of variables**



- Daily production of bioethanol from grain
- Daily DDGS production
- Daily WDGS production
- Daily reprocessed alcohol
- Daily consumption of grain
- Daily consumption of vinilic alcohol
- Daily enzyme process price
- Daily yeast process price
- Daily chemical process price

- **ERP software (BaaN) generates an ASCII file with the required signals / values.**



Enterprise Resource Planning

tdint0116m000 : Mantener Señales OSISOFT [102]

Archivo Editar Ver Workflow Opciones Orden Herramientas Especial Ayuda

Señal BG-PROD-BIOET-CER-DD

Artículo 20000

Tipo movimiento Recepción de fabric

Unidad en Pl m3

Factor de conversión 0,7887

Descripción de la señal Producción bioetanol de cereal

Activo Sí

Número de días para el recálculo 1

Recálculo 60

Señal agregada (suma de otras)

Inicial

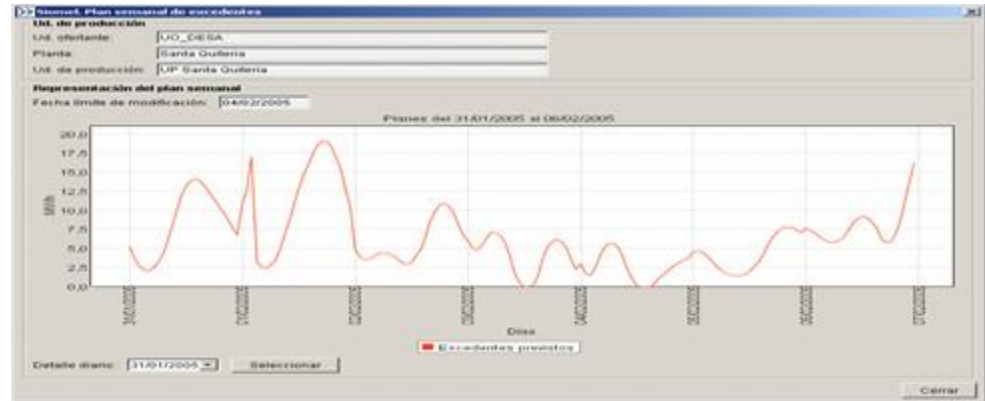


Electricity Meters

- Tarsys (Meter Concentrator Software) – List of variables



- Active Power Import / Export
- Reactive Power Import / Export



- Meter concentrator software (Tarsys) generates a mdb (MS Access) file with the meter readings.



Electronic Weighbridge

- **Weighbridge – List of variables**



- License plate
- Registry number
- Time stamp
- Specific weight
- Humidity

- **Weighbridge software generates a mdb (MS Access) file with the logs.**



Reporting Tool

- **Main Features:**

- **One single application**, in order to generate / access all the reports.
- **Direct access to PI Server**. On line report generation based on data stored in PI Server coming from different sources.
- **Configurable reports**, and may differ from the operational limits usually managed by the Operations Department (DCS).
- **Excel integration (PI-Data Link)**, for final report presentation.



Reporting Tool

 **PIReports 1.0**



ABENGOA BIOENERGY
Bioetanol Galicia, S.A.

Informes Laboratorio Control de Calidad

Informe Diario de Laboratorio

Fermentación

Licuefacción

Beerwell

Entrada Materia Prima (báscula)

Certificado Calidad Producto

Informes Producción de Planta

Control de Producción

Bioetanol Daily Report

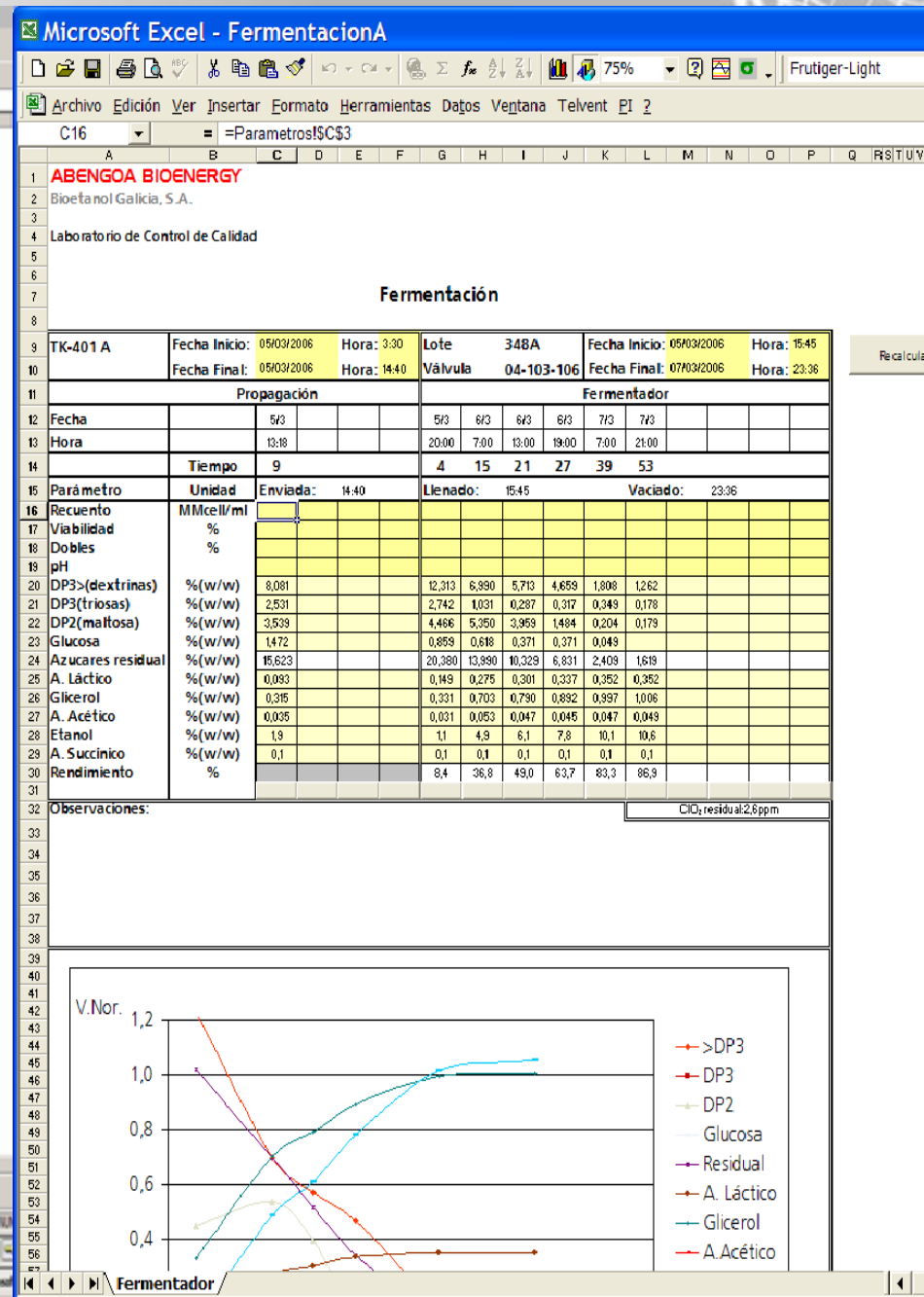
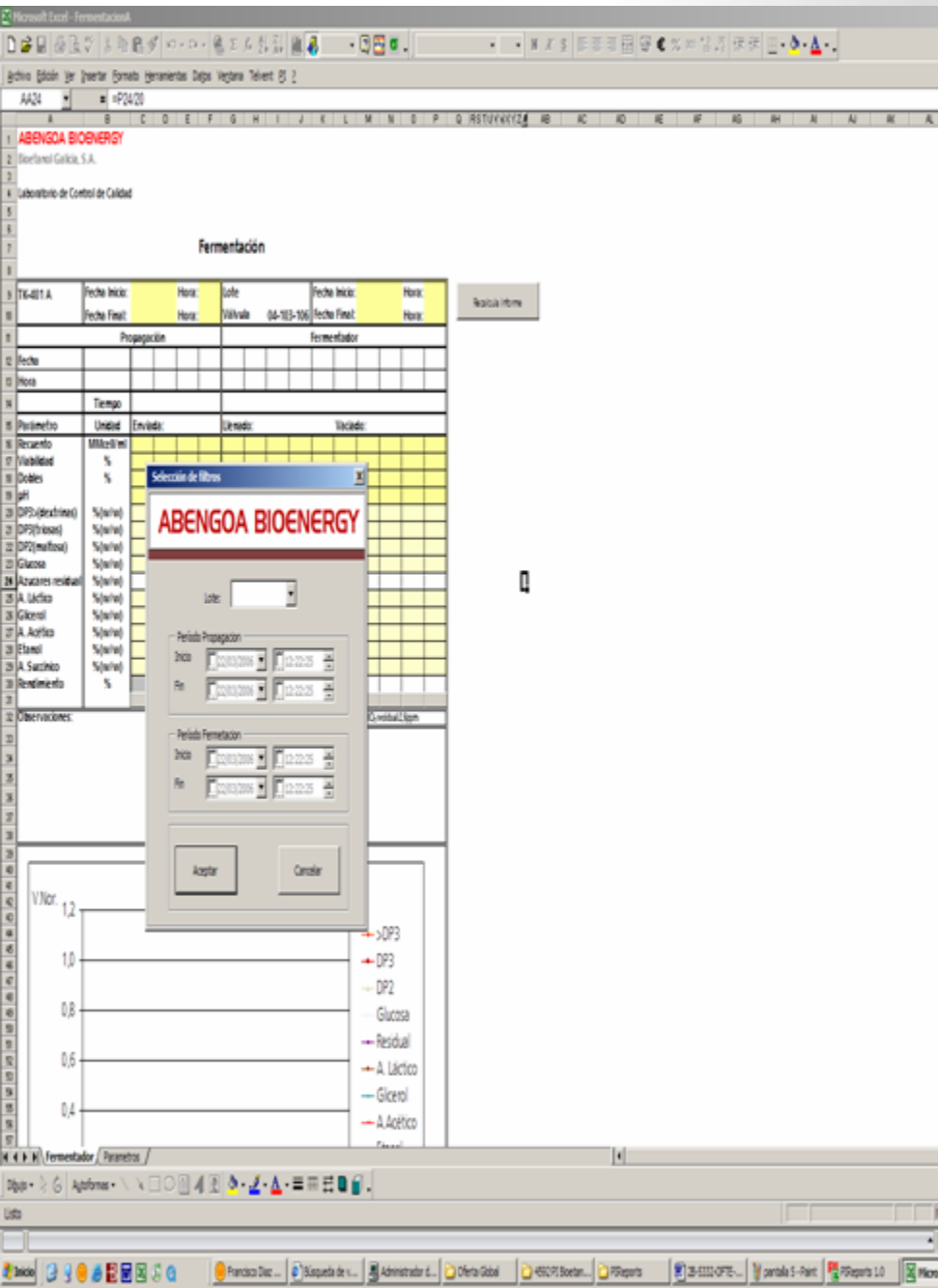
Bioetanol Weekly Report

Informes Cogeneración

Cálculo factura compra electricidad

Cálculo factura venta energía







Microsoft Excel - Licuefacción

Archivo Editar Ver Insertar Formato Herramientas Datos Ventana Teclat. Opciones

C15 4-ParámetrosSCS1

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG

2 Biotanol Galicia, S.A.

3

4 Laboratorio de Control de Calidad

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702

703

704

705

706

707

708

709

710

711

712

713

714

715

716

717

718

719

720

721

722

723

724

725

726

727

728

729

730

731

732

733

734

735

736

737

738

739

740

741

742

743

744

745

746

747

748

749

750

751

752

753

754

755

756

757

758

759

760

761

762

763

764

765

766

767

768

769

770

771

772

773

774

775

776

777

778

779

780

781

782

783

784

785

786

787

788

789

790

791

792

793

794

795

796

797

798

799

800

801

802

803

804

805

806

807

808

809

810

811

812

813

814

815

816

817

818

819

820

821

822

823

824

825

826

827

828

829

830

831

832

833

834

835

836

837

838

839

840

841

842

843

844

845

846

847

848

849

850

851

852

853

854

855

856

857

858

859

860

861

862

863

864

865

866

867

868

869

870

871

872

873

874

875

876

877

878

879

880

881

882

883

884

885

886

887

888

889

890

891

892

893

894

895

896

897

898

899

900

901

902

903

904

905

906

907

908

909

910

911

912

913

914

915

916

917

918

919

920

921

922

923

924

925

926

927

928

929

930

931

932

933

934

935

936

937

938

939

940

941

942

943

944

945

946

947

948

949

950

951

952

953

954

955

956

957

958

959

960

961

962

963

964

965

966

967

968

969

970

971

972

973

974

975

976

977

978

979

980

981

982

983

984

985

986

987

988

989

990

991

992

993

994

995

996

997

998

999

1000

1001

1002

1003

1004

1005

1006

1007

1008

1009

1010

1011

1012

1013

1014

1015

1016

1017

1018

1019

1020

1021

1022

1023

1024

1025

1026

1027

1028

1029

1030

1031

1032

1033

1034

1035

1036

1037

1038

1039

1040

1041

1042

1043

1044

1045

1046

1047

1048

1049

1050

1051

1052

1053

1054

1055

1056

1057

1058

1059

1060

1061

1062

1063

1064

1065

1066

1067

1068

1069

1070

1071

1072

1073

1074

1075

1076

1077

1078

1079

1080

1081

1082

1083

1084

1085

1086

1087

1088

1089

1090

1091

1092

1093

1094

1095

1096

1097

1098

1099

1100

1101

1102

1103

1104

1105

1106

1107

1108

1109

1110

1111

1112

1113

1114

1115

1116

1117

1118

1119

1120

1121

1122

1123

1124

1125

1126

1127

1128

1129

1130

1131

1132

1133

1134

1135

1136

1137

1138

1139

1140

1141

1142

1143

1144

1145

1146

1147

1148

1149

1150

1151

1152

1153

1154

1155

1156

1157

1158

1159

1160

1161

1162

1163

1164

1165

1166

1167

1168

1169

1170

1171

1172

1173

1174

1175

1176

1177

1178

1179

1180

1181

1182

1183

1184

1185

1186

1187

1188

1189

1190

1191

1192

1193

1194

1195

1196

1197

1198

1199

1200

1201

1202

1203

1204

1205

1206

1207

1208

1209

1210

1211

1212

1213

1214

1215

1216

1217

1218

1219

1220

1221

1222

1223

1224

1225

1226

1227

1228

1229

1230

1231

1232

1233

1234

1235

1236

1237

1238

1239

1240

1241

1242

1243

1244

1245

1246

1247

1248

1249

1250

1251

1252

1253

1254

1255

1256

1257

1258

1259

1260

1261

1262

1263

1264

1265

1266

1267

1268

1269

1270

1271

1272

1273

1274

1275

1276

1277

1278

1279

1280

1281

1282

1283

1284

1285

1286

1287

1288

1289

1290

1291

1292

1293

1294

1295

1296

1297

1298

1299

1300

1301

1302

1303

1304

1305

1306

1307

1308

1309

1310

1311

1312

1313

1314

1315

1316

1317

1318

1319

1320

1321

1322

1323

1324

1325

Microsoft Excel - Calculo_Venta_Energia

Archivo Edición Ver Insertar Formato Herramientas Datos Ventana Telvent BI 2

F34

Anexo a factura de venta de energía

Empresa	Bioetanol Galicia	Emp. Distribuidora	UNION PENOSA DIS
CIF	A-36822946	CIF	A-82153834
Teléfono	981 777570	Domicilio	Avda. San Luis 77
Dirección	Poig Ind. Teixeira, Ctra. N-634		28033 - MADRID
	Teixeira-Curtis (A Confla)		

(A efectos de comunicación)

Nombre Central **Bioetanol Galicia**

Potencia (kW) 24.800
 Grupo (R.D. 436/04) 8.1.1
 Código Instalación MINER RE-02-26
 Código Autonómico

Periodo facturación feb-06

BOE
 Plazo de Pago (

Facturación

Importe E 0,00
 Importe P 0,00
 Importe In 0,00
 Importe por Energía Reactiva 0,00
 Total 0,00
 IVA 0,00
 Total factura 0,00 €

ABENGOA BIOENERGY

Periodo Mes febrero /2006

Aceptar Cancelar

Total Reactiva Inductiva 0 KVarh
 Total Reactiva Capacitiva 0 KVarh
 Total Activa 0 kWh

Factura Reactiva Parametros Discriminación horaria

Dibujo Autoformas

Listo

Inicio Francisco Diaz ... Búsqueda de v... Administrador d... Ofe

Anexo a factura de venta de energía

Empresa	Bioetanol Galicia	Emp. Distribuidora	UNION PENOSA DISTRIBUCION
CIF	A-36822946	CIF	A-82153834
Teléfono	981 777570	Domicilio	Avda. San Luis 77
Dirección	Poig Ind. Teixeira, Ctra. N-634		28033 - MADRID
	Teixeira-Curtis (A Confla)		

(A efectos de comunicación)

Nombre Central

Potencia (kW) 24.800
 Grupo (R.D. 436/04) 8.1.1
 Código Instalación MINER RE-02-26
 Código Autonómico

Periodo facturación

BOE 43604
 Plazo de Pago (Días) 20

Prima

Tar media 0,073304 Eur/kWh
 Prima 0,0036652 Eur/kWh

Incentivo

Tar media 0,073304 Eur/kWh
 INC 0,0146608 Eur/kWh

Facturación:

Importe Energía	0,00
Importe Prima	52.380,90
Importe Incentivo	209.523,61
Importe por Energía Reactiva	60.529,64
Total	322.434,15
IVA	51.589,46
Total factura	374.023,61 €

Total Reactiva Inductiva 1.888.029 kVarh
 Total Reactiva Capacitiva 1.034.021 kVarh
 Total Activa 14.291.417 kWh

Precio Medio (c€/u/kWh)

2,20

Datos bancarios
 Rellenar en caso de Modificación

Conformidad UFO



Agenda

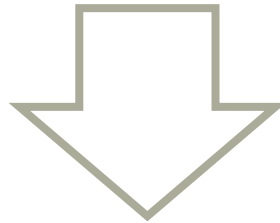
- **Telvent's Company Profile**
- **Abengoa Bioenergy's Company Profile**
- **Business Challenges**
- **Pilot Project – Scope of Work**
- **Pilot Project – Technical Solution**
- **Resulting Benefits**
- **Future Plans**
- **Questions**





Resulting Benefits

- Significant time savings due to automated report generation
- Improved quality of data and reliable reporting (Real Time Data access across the enterprise)
- Proactive problem look ahead through condition based maintenance
- Common understanding of the possibilities, advantages and benefits
- Increased customer's trust in the platform & integrator



**Full customer support
for corporate deployment**



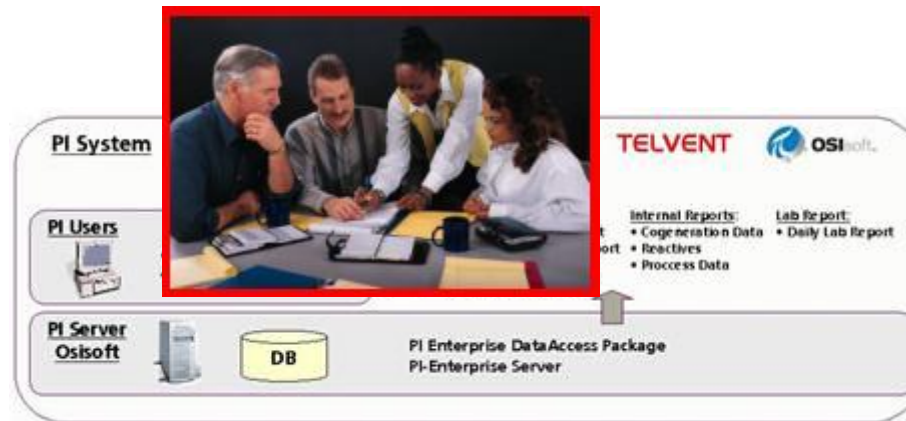
Agenda

- **Telvent's Company Profile**
- **Abengoa Bioenergy's Company Profile**
- **Business Challenges**
- **Pilot Project – Scope of Work**
- **Pilot Project – Technical Solution**
- **Resulting Benefits**
- **Future Plans**
- **Questions**





Corporate Roll – Out



Advantages:

- Aggregated Views
- Common KPI Indicators

York
1414 Road O
York, NE 68467 USA
189 million liters (50 million gallons)



Colwich
P.O. Box 427
523 East Union Ave.
Colwich, KS 67030 USA
95 million liters (25 million gallons)



Portales
1827 Industrial Dr.
Portales, NM 88130 USA
115 million liters (30 million gallons)



Ravenna (Under Construction)
Ravenna County of Buffalo
Nebraska
338 million liters (88 million gallons)



Bioetanol Galicia
Ctra. Nacional, Km 634
15310 Teixero-Curtis (La Coruña), Spain
176 million liters (46 million gallons) of fuel ethanol



Ecocarburantes Españoles
Ctra. Nacional, Km 343
Valle de Escombreras
30350 Cartagena (Murcia), Spain
150 million liters (39 million gallons) of ethanol



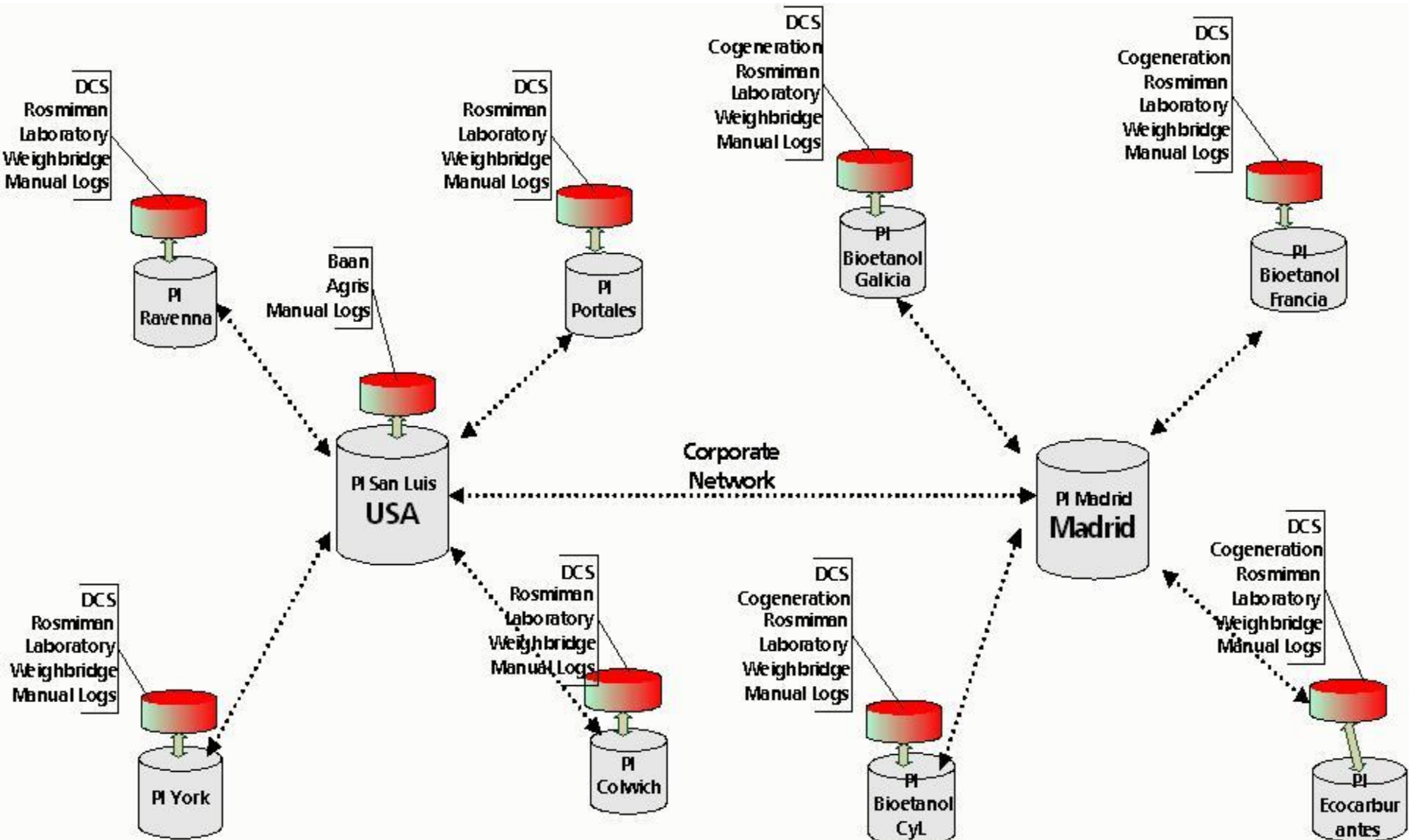
Biocarburantes Castilla y León (In Production)
Carretera Alba de Tormes, km. 1
Carbajosa de la Sagrada
37188 (Salamanca), Spain
200 million liters (53 million gallons) of ethanol



Lacq (Under Construction)
South of France



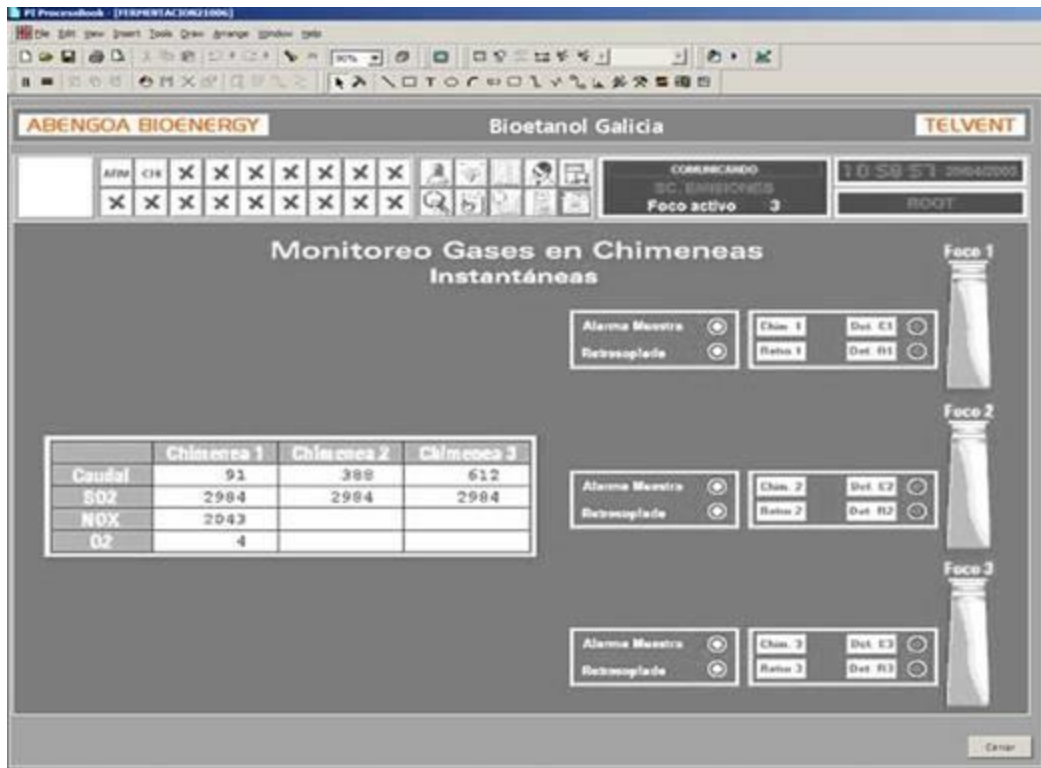
Corporate Roll – Out





Functional Enhancements

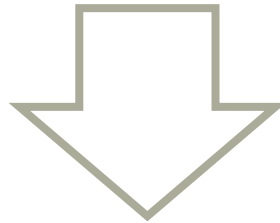
- **Environmental data integration.**
 - Emission & Air Quality Management
 - EU Emission Trading Statement (EU ETS)





Expected Benefits

- Increased plant reliability (through improved quality of data and reliable reporting)
- Ability to predict operational behavior (through condition based maintenance and prediction models)
- Improved benchmarking between facilities (KPI)
- Reduced decision-making cycles (through an integrated decision-making environment)



Strong ROI / Targeted CapEx



Agenda

- **Telvent's Company Profile**
- **Abengoa Bioenergy's Company Profile**
- **Business Challenges**
- **Pilot Project – Scope of Work**
- **Pilot Project – Technical Solution**
- **Resulting Benefits**
- **Future Plans**
- **Questions**





Questions





Thank you!

www.telvent.com