Innovative Technology Solutions for Sustainability



ABENGOA

Engineering & Construction: A World of Opportunities

Analyst & Investor Day

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Technology & Know-how



Discipline



Diversification

Technology & Know-how

70 years of experience in successfully carrying out turnkey projects

Energy

- Power transmission lines
- **Conventional generation plants** (combined cycle, co-generation, repowering)
- Electrical and mechanical installations
- Solar (CSP) and hybrid solar-gas (ISCC) plants
- Biofuels plants

Environment

Water infrastructures and desalination plants

Other

Industrial plants





1st International Contractor in Power

1st International Contractor in Cogeneration



1st International Contractor in Solar

(Source: ENR 2011)



9th Desalination EPC Contractor

(source: IDA Desalination Yearbook 2011-2012)



Technology & Know-how

Entire Value Chain

Covering the full EPC and O&M



- Standardization of activities through clearly defined procedures
- In-house capabilities: Critical activities are executed by own resources or through stable strategic alliances
- Solid engineering capacities that enable us to capture growth opportunities:
 - More than 2,000 highly qualified people.
 - Design engineering network with centres in USA, Mexico, Chile, India, Poland, and Spain.



Technology & Know-how Interaction with Engineering

Integrated business model provides key competitive advantages



Technology & Know-how Project Track Record

Abengoa's conventional generation power projects represent an installed capacity of +5 GW

300 MW Cogeneration Plant (Mexico)



- Location: Mexico
- Amount: 630 M\$
- 1st cogeneration project in a Pemex refinery









- Location: Mexico
- 640 MW Combined Cycle Power Plant.
- Amount: 440 M\$.
 - Location: Poland
- 450 MW Combined Cycle Power Plant. & 270 MWt District Heating System
- Amount: 532 M\$.
- Location: Argentina
- 630 MW Combined Cycle Power Plant.
- Amount: 230 M\$.
- Location: Mexico
- 420 MW Repowering Combined Cycle Power Plant.
- Amount: 114 M\$.

Technology & Know-how Project Track Record

Abengoa has built Bioethanol and Biodiesel Plants producing over 2,500 Ml/year

2nd Generation Bioethanol from Biomass





- Location: Netherlands
- 480 Ml/year, 360,000 Ton DDGS
- Amount: 590 M\$
- Largest Plant in Europe
- Location: France
- 250 Ml/year, 145,000 Ton DDGS
- Amount: 220 M\$

- Location: USA
- 380 Ml/year from biomass and cereal
- Amount: \$385 M



- Location: Spain
- 200.000 T Biodiesel
- Amount: 110 M\$

Technology & Know-how Project Track Record

Abengoa is a pioneer in the construction of CSP & ISCC plants

280 MW CSP Parabolic Through



- Location: USA
- 280 MW CPS Trough Plant with storage
- Amount: 1,632 M\$.
- Largest solar power plant in the world









- Location: Spain
- 20 MW CSP Tower
- Amount: 129 M\$.
- Largest CSP tower in the world
- Location: Morocco
- Integrated Solar Combined Cycle.
 470 MW (20 MW from Solar System)
- Amount: 524 M\$.
- World's first hybrid CSP Plant.
- Location: Abu Dhabi
- 100 MW parabolic trough plants.
- Amount: 600 M\$
- Location: South Africa
- 50 MW CSP Tower
- Amount: 370 M\$.

Technology & Know-how Project Track Record

Abengoa has built +26,000 km of transmission lines over the last 10 years

2,410 km Transmission Line



- Location: Brazil
- Amount: 1,024 M\$
- Largest transmission line project in Latin America.



- Location: Peru
- 670 km Transmission Line (220 kV AC)
- Amount: 320 M\$
- Average altitude of 3,000 m over sea level



- Location: Brazil
- 987 km Transmission Line (220 kV AC)
- Amount: + 205 M\$



- Location: India
- 171 km Transmission Line (Direct Current of 400 kV)
- Amount: 12 M\$



Technology & Know-how Project Track Record

Abengoa has built +1.3 Mm³/day desalination capacity

100,000 m³/day Desalination Plant



- Location: China
- Amount: 192 M\$
- "2009 Desalination Project of the Year" (Water Intelligence)





- Location: Algeria
- 100,000 m³/day desalination plant.
- "2006 Desalination Deal of the Year" (Water Intelligence)
- Amount: 232 M\$
- Location: Romania
- Increasing capacity of a water treatment plant (115,000 m³/day)
- Amount: 28 M\$



- Location: India
- 100,000 m³/day desalination plant
- Amount: 130 M\$





Technology & Know-how



Discipline

Diversification

Discipline Risk Management

Discipline at bidding phase

Project pre-design

- Complete definition of technical solution
- Firm proposal from critical suppliers
- Exhaustive analyses applying Monte Carlo simulation of up to 30 variables like:
 - experience from previous projects
 - country specific factors, etc.
- Risk quantification in terms of budget, performance and schedule
- Definition of contingencies

- **Financial Model**
- Guarantee positive cash-flow
- Avoid foreign currency risk through hedging
- Reduce collection risk through non-recourse factoring
- Other insurances to cover project specific risks

Contractual Model

- Exactly quantified limits for responsibilities
- Clear definition of acceptable contractual terms

Discipline Risk Management

Discipline at execution phase

Monthly report per project

Standardized format including:

- Execution progress
- Schedule, etc.

Report by the Project Manager



Budget & CF follow up

- Monthly budget achievement review by independent controller providing guidance on year end
- Weekly preparation of monthly cash-flow and year-end forecasts

Critical projects follow-up

- Independent audit & follow-up of the risks detected in proposal phase by Chief Risk Manager
- Monthly review of critical projects by CEO & top management

Discipline Success Story

A success story based on discipline

Thanks to ...



our exhaustive risk assessment at bidding phase



the disciplined follow-up and control in execution phase



and the ad-hoc actions in case of any deviations



... we execute our projects complying with budget, schedule and performance





Technology & Know-how



Discipline



Diversification



Diversification Global Presence

Local presence in 37 countries and 6 design centers, +14,000 people



Diversification Global Presence

Diversified blue-chip client base across geographies with longstanding relationships





Diversification Backlog

Global scale of Abengoa's present and future



Source: Abengoa

Diversification Power Transmission lines

Abengoa continues to see attractive growth opportunities, especially in Latam, Asia & Africa

- Brazil: Grid expansion of ~37,000 km in 2009 2019 (investment of ~BRL43.0 B)
- Peru: Grid expansion of more than 2,000 Km new lines 2012-17 (investment of ~670 M\$)
- Chile: 8 BOT concessions to be tendered between 2011 and 2012 (investment of ~850 M\$)



- Asia: Steady economic growth is fuelling a strong increase in enewrgy demand, creating large opportunities
- ~100 B\$ investments in in T&D in India until 2020
- ~30 B\$ investments in in T&D in Middle East until 2020



Diversification Power Generation Plants

Our future growth in the power generation business will take place mainly in Latam, Asia and Eastern Europe.

- Stable Abengoa presence in Brazil, Chile, Uruguay, Mexico, Peru, Colombia, Argentina
- Mexico: strong relationship with CFE (long track record & strong pipeline of projects)



- Middle East: Significant increase in power demand with special focus on renewables.
- North Africa: Huge potential for solar power plants (national and multinational initiatives, like Desertec, Mediterranean Solar Program, World Bank: CTF)
- Need for new energy infrastructure with special focus on hybrid solutions (conventional/renewable plants).
- Strong need to reduce coal based generation (focus on gas, biomass, etc.)
- Leverage our local presence in Poland
- Huge opportunities for gas projects in Russia and surrounding countries due to recent changes in legislation



Diversification

Environment

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Environment continues to explore and identify attractive opportunities, especially in Latam, Asia, Africa



- Mexico: + 1,200 M€ of potential projects identified
- Opportunities detected in Chile, Peru, Costa Rica and Brazil



- India: A total pipeline of + 2,000 M€ in environment projects
- Asia-Pacific: Opportunities identified in Brunei, Philippines, Indonesia and Singapore.
- China: Water Treatment Pipeline of 1,200 M€.



Africa: Opportunities detected in Morocco, Egypt, Argelia, Nigeria, Ghana, South Africa, Camerun, Rwanda, Namibia, Senegal and Angola.



Highlights



Enormous growth in 2011 and backlog increase in 21% despite the actual macroeconomic situation. Huge growth opportunities in current and new geographies, +73 B€ of potential projects already identified.





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ABENGOA Thank you!

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