New financial instruments in the Valencia Region supporting the development of infrastructures and acquisition of AFVs:
Financing Schemes in Pilot 8 - Valencia

Report

Alternative Fuel Vehicles – the PROCURA project

Valencia, May 2007

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# Table of Contents

**Background information** ................................................................. 5

1. The Region of Valencia .................................................................. 5  
   1.1. Key factors for early value creation at regional level in Valencia .... 7
2. Financing Overview ....................................................................... 8
3. Supporting Structures in Valencia .................................................. 9

**Development of Infrastructure** ....................................................... 17

1. Financing infrastructure creation .................................................. 17
2. Finance of business development to support the creation of a biofuels infrastructure .... 18  
   2.1. Equity Financing .................................................................. 19
   2.2. Capital Access Schemes .......................................................... 20
   2.3. Debt Financing ..................................................................... 22

**AFV Procurement** ........................................................................ 25

1. Procurement Stimulation of Alternative Fuel Vehicles ................... 25
2. AFV Procurement Schemes ............................................................ 26  
   2.1. Progress Payment ................................................................ 27
   2.2. Cross Border Lease ................................................................ 28
   2.3. Shared Savings Plan – a case example ................................. 29
   2.4. Leasing with obliged insurance (LoI) .................................... 30
   2.5. Joint Procurement / Buyer Pool procurement ..................... 31
   2.6. Third Party Finance – Investing scheme on fuel savings ......... 33
   2.7. Further Cost Reduction options of AFV Procurement ......... 33

**Financing of Projects dealing with renewable energy sources, the creation of infrastructure and AFV procurement** ................................................. 34

1. The concept of Project Finance ..................................................... 34
2. EU financing sources for Renewable Energy projects .................. 36

**Conclusion** .................................................................................. 36

**Bibliography** .................................................................................. 38
Table of Illustrations

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geographic Location of Valencia</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Economic Situation in the Region of Valencia</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Created Value in the Region of Valencia</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Primary and Support Value Chain results (NTDA)</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Financing categories (NTDA)</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Range of financing options (NTDA)</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>Valencian Innovation System</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>Support Structures Spain</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>SME Funding Pathway</td>
<td>19</td>
</tr>
<tr>
<td>10</td>
<td>Capital Access Programme</td>
<td>21</td>
</tr>
<tr>
<td>11</td>
<td>Small Business Loan Securitisation via collateralised loan obligation</td>
<td>22</td>
</tr>
<tr>
<td>12</td>
<td>Community Investment Note</td>
<td>22</td>
</tr>
<tr>
<td>13</td>
<td>Environmental Banks</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>Banks offering Syndicated Loans</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>Stimulation Measures</td>
<td>26</td>
</tr>
<tr>
<td>16</td>
<td>Progress Payment</td>
<td>28</td>
</tr>
<tr>
<td>17</td>
<td>Cross Border Lease</td>
<td>29</td>
</tr>
<tr>
<td>18</td>
<td>Shared Savings Plan - Egypt</td>
<td>30</td>
</tr>
<tr>
<td>19</td>
<td>LoI</td>
<td>31</td>
</tr>
<tr>
<td>20</td>
<td>Joint Procurement</td>
<td>33</td>
</tr>
<tr>
<td>21</td>
<td>Corporate &amp; Project Finance</td>
<td>35</td>
</tr>
</tbody>
</table>
Background information

Especially regarding the alternative fuel vehicle procurement and the creation of alternative fuel infrastructure it is important to analyse possible financial strategies before beginning the procurement process as due to the current market situation, alternative fuel vehicle are still more expensive to acquire than traditional vehicles. The underlying financial concept of procurement schemes and the creation of infrastructure can be the decisive success factor or showstopper of an entire procurement plan as well as the viability of installed biofuels infrastructure. Therefore, a financial concept which can be applied to a certain procurement case or the biofuels infrastructure creation and which generates a win/win situation for all participants can be highly beneficial.

This study investigates the existing economic financing instruments for the infrastructure development related to the use of alternative fuel vehicles in the region of Valencia. Within this study we are differentiating between market based instruments, e.g. certificates, tax instruments and grants. When referring to economic instruments we are talking about taxes, tax allowances, grants and charges. Consequently, this paper aims at sketching and outlining different financial models which may be applied to the AFV procurement process as well as to the creation of a biofuels infrastructure. The financial concepts presented here merely provide an overview, and cannot provide a guarantee for success as many different aspects are crucial for the success of procurement.

Although the promotion of renewable energy has been an integral part of the EU energy policy, renewable energy sources (RES) are currently insufficiently exploited in the EU. As a result, the promotion of renewable energy has become a European Union priority policy objective aiming at increasing the share of renewable energy in gross domestic energy consumption in the EU, producing more electricity from renewable energy sources and reducing the overall emissions of greenhouse gases. As a subsequent step the Gothenburg European Council in June 2001 confirmed the EU consumption targets of 22% and also invited “the member states to promote the Sustainable Development Strategy and to cooperate with the Commission in implementing the EU policy on climate change.”

1. The Region of Valencia

The Region of Valencia is placed along the eastern coast of the Iberian Peninsula surrounded by Catalonia in the north, Aragon in the west, Castilla la Mancha and Murcia in the south and the Mediterranean Sea in the east. The region of Valencia covers a territory of 23,255 km², which is approximately 4.6% of Spain and 0.6% of the European Union. The population of the Valencian region is 4.7 million causing a dense living environment of 199,2 inhabitants per Km.

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2 Data from www.invest-vci.com
Valencia is a regional capital and the third largest city of Spain, with steadily increasing energy demand. Since 1998, the level of average energy demand increase has been 40% in Spain and it has been even higher in Valencia.

Traditional business sectors in this region are ceramics, concrete, shoe - as well as furniture manufacturing. In a relatively short period, the area has moved from a traditionally agricultural-based society to providing the services and industrial activities typical of an economically advanced society.

Overall, the development of the gross domestic product generated in the Region of Valencia increases the average national GDP growth rates. In 2003, the GDP in the Region of Valencia amounted to 72.332 billion euros, which is a share of around 10% of the domestic GNP.

<table>
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<th>Region of Valencia</th>
<th>Spain</th>
<th>%</th>
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<tr>
<td>GDP</td>
<td>72.322</td>
<td>743.046</td>
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<td>Agriculture</td>
<td>1.779</td>
<td>24.669</td>
<td>7,2</td>
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<td>Industry</td>
<td>15.125</td>
<td>145.117</td>
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<td>Construction</td>
<td>8.094</td>
<td>74.676</td>
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<tr>
<td>Services</td>
<td>47.334</td>
<td>498.584</td>
<td>9,5</td>
</tr>
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</table>

By and large, the Valencian climate can be described as having mild winters and hot summers with only very little rainfall (450mm/year). Moreover, Valencia is well placed for the employment and use of Renewable Energies due to steady and strong wind as well as many days of sunshine (around 80 - 90% sunny days), but nonetheless Valencia only employs a low RES concentration in the energy balance.

In the field of Renewable Energies, the Valencian Region created the Valencian Energy Agency (www.aven.es). The aim is to develop and pursue an Energy Saving Plan in the Valencian Region. The basic aim of this plan is to decrease the energetic primary intensity in a 1,1% inter-annual, that is the same as to diminish the necessary consumption of energy in order to realize every GDP unit. This aim is higher than the one fixed by the European Union, which is established in a 1% inter annual reduction of the energetic intensity.

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3 Mínguez, Javier: La Comunidad Valenciana Socio-economical context, IMPIVA, Presentation, Latí Finland, 29th November, 2006
4 Cámara de comercio de Valencia, Valencia Chamber of Commerce
1.1. Key factors for early value creation at regional level in Valencia

In order to analyse the precise channels through which businesses develop the infrastructure and acquisition of alternative fuel vehicles, it is useful to depict the businesses along a chain of value-creating activities. Michael Porter, whose proposals on value chain analysis have been acknowledged within the field of market development studies, identified a set of interrelated generic activities and developed the value chain model.\(^5\)

Value chain analysis offers a fundamental analytical tool for a region pursuing the installation of biofuels infrastructure and the market penetration of alternative fuel vehicles. On the one hand, it allows the region to identify key players for this market within their region, and on the other, the analysis allows businesses within the region to identify their market position and potential future market opportunities. Thus, the value chain categorises activities that add value in an organization or, in this particular case, in a region with an established biofuels infrastructure.

![Figure 3 – Created Value in the Region of Valencia\(^6\)](image)

Each of the primary activities corresponds to a certain value action:

- **Inbound Logistics** – storage and inventory control of input materials
- **Operations** – all value increasing activities that convert the inputs into the final product
- **Outbound Logistics** – activities which coordinate and transport the product to the customer
- **Marketing & Sales** – actions related to motivating potential buyers, including channel selection, advertising, promotion, selling and pricing
- **Service activities** – preserve and develop the value of the product, including customer support, maintenance and repair services

Overall, the value chain is divided into primary and support (also referred to as secondary) activities. It allows regions to identify both the potential and the shortcomings of their

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community businesses in relation to the creation of biofuels infrastructure. Moreover this approach enables them to recognize whether or not their region is particularly well positioned for a specific biofuels industry sector (e.g. especial resources of a certain biofuels). As a consequence the outcome of a value chain analysis for a region facilitates the mapping of the Community strategy and the identification of the requirements to build a regional biofuels infrastructure.

For the region of Valencia an initial value chain approach related to the creation of biofuels infrastructure has been conducted. The main conclusions can be found in the figures below differentiating between results related to primary value chain activities and conclusions related to the support value chain activities:

2. Financing Overview

Business development for a market sector dealing with biofuels requires the development of sufficiently flexible innovating financial instruments. These instruments can be divided in three fundamental categories:

- Public Funding (subsidies, grants, public tenders etc)
- Debt Financing (corporate loans, corporate bonds, project finance etc)
- Equity Financing (technology transfer accelerators, incubators, business angels, early- and – late-stage venture capital, trades shares)
The following figure depicts the range of financing available in terms of private and public financing options. The proportion in which financing sources are required and should be applied will change as the project undergoes the regular cycle of business development.

In brief, it can be said that when discussing financial instruments and their value to the creation of a biofuels infrastructure, i.e. of companies working along the value chain of biofuels; it is essential that these companies consider their resources and abilities to achieve liabilities. In particular, this refers to whether the company can provide the financial and human resources compulsory to access R&D grants or subsidies which require the company to at least partially match the grant funding/subsidy. In the same way, companies along the biofuels value chain should examine whether they earn sufficient profits to finance debt instruments that entail ongoing interest payments, or to make use of tax breaks. Furthermore, it has to be taken into account that due to legal restrictions or out of tradition, different entities (SMEs, Micros, etc.) may only access particular funds and not qualify for others. Another critical aspect is that the ideal application of financing instruments has to be aligned with the business stage in which the company is in at the given point.

3. **Supporting Structures in Valencia**

There are a variety of financing options available for the creation of a company working the field of alternative fuels and vehicles within the Region of Valencia. The public financing can be realized by means of subsidies, loans or guarantees.

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In general, in order to access public financing, the company and its project have to adjust to specific objectives of a program or instrument to satisfy certain criteria bound to the receipt of funding. These criteria are indicated in the different programme principles, instrument descriptions and in public tenders. Many of the programs or instruments have specific terms of request or periods or concrete times of the year in which call for proposals are presented.

The categorisation of different incentives and subsidies for the environment accessible for the region of Valencia is quite complex due to the enormous diversity which is available. Therefore this report relies on a basic classification splitting incentives and subsidies into non refundable subsidies and subsidised credits or loans.

Apart from the different financial instruments (Loans and Credits, Discounts, Capital risk, participative loans, guarantees - Promissory note, Cession of credit, Mortgage, Factoring, Leasing, Renting, Forfaiting, other financial instruments: Financial options, derived product Market, Future financiers, Forward, Swap) there are other financing sources accessible in the region of Valencia:

- **Capital Risk entities:**
  - ICO (Instituto de Crédito Oficial)
  - CDTI (Centro para el Desarrollo Tecnológico Industrial)
  - IDAE (Instituto para la Diversificación y Ahorro de la Energía)
  - AXIS (Axis Participaciones Empresariales)
  - ASCRI (Asociación Española de Capital Inversión)
  - ENISA (Empresa Nacional de Innovación)
  - SGR (Sociedades de Garantía Recíproca)
  - CESGAR (Confederación Española de Sociedades de Garantía Recíproca)
  - CERSA (Compañía Española de Reafianzamiento).

- **Financing sources supporting internationalisation**
  - ICO (Instituto de Crédito Oficial)
  - ICEX (Instituto Español de Comercio Exterior)
  - COFIDES (Compañía Española de Financiación del Desarrollo)
  - CESCE (Compañía Española de Seguros de Crédito a la Exportación)

The Spanish administration has created various cooperation and financial support networks with the aim of supporting the business development of SMEs. The following list includes the more significant initiatives:

- **Ventanilla Única Empresarial (VUE)** - Probably the principal cooperation initiative which offers various services to SMEs, such as information on financing sources, administrative issues and management skills.

- **Dirección General de Política de la Pequeña y Mediana Empresa** - in charge of the design, coordination and pursuit of the state policy of education, support and promotion of the competitiveness of small and medium sized companies.

- **Instituto de Crédito Oficial (ICO)** – Public Entity assigned to the Ministry of Economy and Property that works to favour the compatible economic growth with a greater social and territorial cohesion.
- **Centro para el Desarrollo Tecnológico Industrial (CDTI)** - Public Entity belonging to the Ministry of Industry, Tourism and Commerce, that promotes innovation and technological development of Spanish companies. Its core objective is to contribute to the improvement of the technological level of the Spanish companies.

- **Instituto para la Diversificación y Ahorro de la Energía (IDAE)** - Public Entity assigned to the Ministry of Industry, Tourism and Commerce, through the General Secretariat of Energy that promotes the power efficiency and the rational use of energy in Spain, as well as the diversification of energy sources and the promotion of the renewable energies.

- **Instituto Español de Comercio Exterior (ICEX)** - Offers services to Spanish companies with the purpose of impelling and of facilitating its international projection. The ICEX develops their activity from foreign countries through the network of Economic and Commercial Offices of the Embassies of Spain and, in Spain, through the Regional addresses and Territorial of Commerce.

Companies can also access an ample concept of subsidies, fiscal or social benefits implied with an extension of loan / subsidy repayment, or related to the reduction or abatement of interests paid on debts. The territorial structure of Spain and the fact that Autonomous Communities and local organisations face market competitions related to company promotion, the support in the search of national public funding carried out on national scope.

In 1984 the regional government of Valencia set up a public entity (CEUC) to stimulate innovation within the Region of Valencia by supporting local small and medium sized companies. CEUC includes the background and knowledge of enterprises, universities and science and offers orientation, subsidies and infrastructure to SMEs. A basic outline of this concept can be seen in below diagram:

![Figure 7 – Valencian Innovation System](image)

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8 Mínguez, Javier: La Comunidad Valenciana Socio-economical context, IMPIVA, Presentation, Latí Finland, 29th November, 2006, slide 12
The regional funding environment offers various funding sources. Due to their nature, these funding sources may incorporate different features in their services and decisions to supply capital. Within the Region of Valencia there are a number of support structures available for the creation of innovative companies and eco-infrastructure. Some of these structures as well as other services available within the Region of Valencia.\(^9\)

\(^9\) Please note, this list does not assume to be exclusive
<table>
<thead>
<tr>
<th>LEVEL</th>
<th>Organisation</th>
<th>Logo</th>
<th>Objectives &amp; Services</th>
<th>Comments / Contact / Restrictions &amp; Conditions</th>
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|       | DG PYME | | • Directorate General (DG) for SME policies  
  • Database with search function to find public funding for the business creation on a national level. | http://www.ipyme.org |
|       | IVJ | | • Supporting search of public funding for business start-up and equipment of companies created by people who are maximum 30 years old  
  • Business Courses and educational classes | http://www.ivaj.es |
|       | IMPIVA | | • Institute for small & medium sized industries initiated by the Generalitat Valenciana  
  • Supports search of public funding to realise technological business ideas and leading them to commercialisation.  
  • Programme of public funding and subsidies (Programa de ayudas y subvenciones) with special focus on microcompanies  
  • Webpage with information on technologies, patents, financing, the environment, subsidies, EU projects  
  • Expert Forums and industrial education  
  • Programa De Creacion De Empresas De Base Tecnológica  
    > Aim at fostering the creation of new technological industries in order to diversify the regional industry and competences  
    >Available for SMEs with head office in the region of Valencia with the core business of technological development and installed after the 1st of January 2003  
    >Financial Support in equipment acquisition  
    >Support in commercialisation and marketing  
    >Support in R&D  
    >Subsidies and public funding, i.e. max 50% for consulting costs, 15% for material costs and patent costs of small enterprises, 7,5% for medium sized enterprises | http://www.impiva.es |
|       | CEEI DE ELCHE | | • Online tool for subsidy search  
  • Business Classes  
  • Advice for the new business start-ups related to Strategic business planning, Management, Market Entry, Marketing, Financing, Human Resources  
  • Business Club (Club de Empresas) for networking and experience exchange | http://www.redceei.com/ceei-elche/ceei.aspx |
|       | Fundación Gaztempresa | | • Founded by Gaztelan and the Caja Laboral  
  • Promoting autonomy of young entrepreneur by providing information,  
  • Support in search of financing | http://www.gaztempres.com |
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<th>INCENTIVES AVAILABLE</th>
<th>FUNDS AVAILABLE</th>
<th>Comments / Contact / Restrictions &amp; Conditions</th>
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|       | VUE Ventanilla única empresarial | ![Logo](image1.png) | • Public entity issuing information, subsidies and and management support  
• Step to step guide on business creation  
• Interconnected support network to help with the creation of companies with base in Valladolid, Palma de Mallorca, Santa Cruz de Tenerife, Las Palmas de Gran Canaria, Madrid, Getafe, Burgos, Murcia, Oviedo, Zamora, Navarra, Segovia, Toledo, Seville, Valencia, Ávila, Zaragoza, Cartagena, Salamanca, Ciudad Real y Albacete. | X | X | X | [http://www.ventanillaempresarial.org](http://www.ventanillaempresarial.org)  
|       | El Portal del Ciudadano | ![Logo](image2.png) | • El Portal del Ciudadano is a webpage of the spanish administration providing information to the citizens on general sprects as well as on available incentives and a search engine for public tenders, subsidies and job postings | X | X | X | [http://www.060.es/te_ayudamos_a/ind ex-ides-idweb.html](http://www.060.es/te_ayudamos_a/indice-ides-idweb.html) |
|       | CDTI Centro para el Desarrollo Tecnológico Industrial | ![Logo](image3.png) | • Public entity (part of the Ministry of Science and Technology) to support the progress of innovation and technological development of Spanish companies  
• Subsidises individual projects and develops activities such as the economic - technical evaluation and financing of R&D projects | X | X | | [http://www.cdti.es/](http://www.cdti.es/) |
|       | IDAE Instituto para la Diversificación y Ahorro de la Energía | ![Logo](image4.png) | • The Institute for Energy Diversification and Saving, IDAE, is a public business entity attached to the Ministry of Industry, Tourism and Commerce through the General Secretariat of Energy, from which it depends functionally on  
• IDAE carries out actions on dissemination of information, technical advice, development and financing of technological innovation projects a  
• Support in participation in various European programmes, as well as cooperation projects with third countries.  
• The implementation of training and awareness campaigns that will contribute to the building of a new energy model which, guaranteeing the service quality and safety, will promote the competitiveness of Spanish firms on the base of sustainability and | X | X | X | [http://www.idae.es/](http://www.idae.es/) |
|       | ASCRI Asociación Española de Capital Inversión | ![Logo](image5.png) | • Association without objective of creating profit  
• Aim to stimulate the Capital investment in non-quoted companies  
• Facilitates contacts between companies and possibel investors  
• Helps in promoting, searching and analysing information related to the Capital Risk Sector in Spain | X | X | X | [http://www.ascri.org/ascri/ascrweb.nsf](http://www.ascri.org/ascri/ascrweb.nsf) |
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<th>Logo</th>
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<th>Financing Available</th>
<th>Incentives Available</th>
<th>Funds Available</th>
<th>Comments / Contact / Restrictions &amp; Conditions</th>
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|       | ENISA Empresa Nacional de Innovación | ![ENISA Logo] | • ENISA is a public entity of the Ministry of Industry, Tourism and Commerce  
• Support to SME development from a theoretic perspective (education) as well as financial  
• Active in financial investments, especially for projects /companies in early stage  
• Searching and applying of new financial instruments  
• Offers préstamo participativo and other loans | X | X | http://www.enisa.es/ |
|       | SGR Sociedad de Garantía Reciproca | ![SGR Logo] | • Financing Institute created by SMEs to facilitate the access to loans and improve the general conditions of financing access via loan guarantees  
• Offering subsidies on the short term  
• Advice on financing issues | | | http://www.sgr.es/ |
|       | CAM Caja de Ahorros del Mediterráneo | ![CAM Logo] | • Mediterranean Savings Bank offering various services for businesses such as economic analysis and national / international market analysis  
• Online information on national and regional subsidies | | | http://www.cam.es/ |
|       | ICO Instituto de Crédito Oficial | ![ICO Logo] | • Support to Business start-up with subsidised loans especially for businesses in social, cultural, innovative and ecological fields  
• Public Entity belonging to the Ministry of Economics and Treasury | | | http://www.ico.es/web/contenidos/home.html |
|       | BANCAJA | ![BANCAJA Logo] | • Information of access to public funding an subsidies  
• Subsidy Programme for R&D "Programa de ayuda Bancaja a la Investigación"  
• Programme to the support of young entrepreneurs "Programa Jovenes Emprendedores" | X | X | www.bancaja.es |
|       | ICEX Instituto Español de Comercio Exterior | ![ICEX Logo] | • Spanish Institute for foreign commerce is a public organisation offering its services to spanish companies helping them to access interational activities  
• Support in dissemination, professional employer development  
• Facilitating financing | X | X | http://www.icex.es/icex/cda/controler/pageICEX/0,6558,5518394_5518974_5536731_0_0_-1,00.html |
|       | CESCE Compañía Española de Seguros de Crédito a la Exportación | ![CESCE Logo] | • CESCE is a Public Limited Company owned primarily by the Spanish State and by the country's leading banks and insurance companies. The corporate object is to insure companies against the risks of non-payment stemming from the sale of their products and services on both the domestic and the foreign markets  
• Aim of facilitating the internationalization of Spanish companies | X | X | http://www.cesce.es/cda/home_id53.jsp?pageid=54&idioma=es&idiomaCesnet=ESP |
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</tr>
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|         | E-Exterior  
Expansión Exterior                  | ![E-Exterior Logo](image)                        | • Encourages and supports the process of internationalisation of Spanish companies  
• Detection and creation of opportunities for exports  
• Collaboration in development of export projects that are proposed to it by Spanish companies.  
• Grouping of SMEs, integrating them in major projects and thus facilitating their access to the international markets.  
• Increase in the export potential of major companies, favouring alliances with multinational groups and identifying the most appropriate local partners.  
• Advice on design and achievement of the ideal financial structure for each export operation.  
• Design and implementation of financial packets including sources of financing of diverse origins, from bilateral or multilateral concession soft loans to private funds, coverage by export credit agencies, as well as any other financial option, including counter-trade and barter or exchange operations.  
• Active participation in concession or investment projects, in the modes of Project Finance (PF) or Public-Private Partnership (PPP), providing advice from the initial phase.                                                                 | X                  | X                    |                         | http://www.e-exterior.com/uk/index.asp                                |
|         | COFIDES  
Compañía Española de Financiación del Desarrollo     | ![COFIDES Logo](image)                        | • Anonymous society of mixed capital (public & private) with the objective to stimulate investments of Spanish companies in developing company                                                                                                                                                                                                                                                                                                                                                                      | X                  | X                    |                         | http://www.cofides.es/                                                                 |

Figure 8 – Support Structures Spain
Development of Infrastructure

1. Financing infrastructure creation

A developed infrastructure for alternative fuel vehicles (AFVs) is vital for the successful market penetration of AFVs within Europe. This infrastructure incorporates everything an owner of an alternative fuel vehicle may have to rely on:

- Fuelling stations, which give access to alternative fuels
- Maintenance facilities, which are experienced with AFVs
- Repair facilities, which are experienced with AFVs
- Availability of AFVs

Part of the support of the development of infrastructure should be dedicated to financing mechanisms which facilitate the financing of companies which are engaged in the AFV field. These companies may be alternative energy producer, energy provider, alternative energy transport companies or companies which offer maintenance and repair facilities for alternative fuel vehicles. Especially for the support of the last group, this chapter briefly depicts SME financing possibilities. When funding a SME the founder often faces a significant equity gap. Yet, only few founders are acquainted with European, national or even regional research subsidies. These grants may be combined with Venture Capital Fund investments, such as the programmes promoted by the European Investment Bank in the JEREMIE project.

The European Investment Bank (EIB) and the EU budget of 2007 – 2013 generate approximately twenty billion Euros in bank lending with the intention of supporting the alternative transport infrastructure. Moreover, programmes like JASPERS (Joint Assistance to Support Projects in European Regions) facilitate the creation of projects, which support the AFV infrastructure development.

SME’s in the field of alternative fuels, who intend to provide infrastructure for the AFV development have different finance access options. As most small medium companies they may rely on the following financial sources (apart of general loans, equity increase and others) for the development of infrastructure:

- University and research centre spin-off funds
- Public subsidies
- Business Angels
- Guarantee Schemes
- (Semi-) public investment funds
- Regional public venture capital

The use of biofuels demands a thoroughly developed infrastructure allowing access for individual drivers to filling stations as well as to maintenance services. Therefore it is important to stimulate the development of all facilities along the value chain (i.e. biofuels production, logistics, fuel provider, maintenance and disposal) at the same time. Moreover, the installation of new infrastructure should go along with high effort to inform the general public of these new possibilities and fuels.

During the design phase preceding the set-up of a biofuels infrastructure in a city or a region, the placement of the first filling stations is of great significance. Filling stations should be placed on main roads used to enter or leave the city so that easy commuters have access to them. Moreover, it should be taken into account that large fleet operators are close-by in order to gain them for a vehicle change.

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10 Mid-term review of the European Commission’s 2001 Transport White Paper, p. 17
When setting up the initial infrastructure facilities it is important to bear any later-stage upgrading possibilities in mind. Therefore, new installed biofuels filling stations should include the option for natural gas supply (in Valencia still not available) and the hydrogen supply. Thus, fuel providers can avoid later stage modifications.

The creation of a thorough Communication strategy plays a crucial role in the success probability of the local biofuels development. Only an informed end-user (fuel consumer, vehicle purchaser) can identify his personal as well as the overall societal benefits of a good local biofuels infrastructure.

An alliance with local dealers of alternative fuel vehicles is beneficial for both sides as the dealer is dependent on presenting an existing infrastructure to his customers and the alternative fuelling station proprietor gains visibility and popularity among alternative fuel consumers. In the ideal case, the dealer hands out directions and characteristics of the alternative fuel filling station to his customers along with the purchase documents.

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**Natural Gas infrastructure in Valencia**

The city of Valencia has recently made first advances towards the creation of infrastructure for natural gas supply. Until today, a private natural gas filling station can be found in the depot of EMT, the local bus transit company.

However, the installation of public accessible natural gas filling stations has been decided upon on the 6th of June. The private company “Gas Natural” and the Valencian Taxi Cooperative (TAXCO) signed an understanding to install a filling station providing natural gas at the industrial park of Vara de Quart. At this location the TAXCO association consisting of more than 1700 members could access and thus benefit from the filling station.

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2. **Finance of business development to support the creation of a biofuels infrastructure**

The key problem related to the financing of start-up companies engaged in the field of alternative fuel vehicles is the initial access to equity. This initial equity access is essential for a business in order to expand throughout the initial stages of its business idea and on its way to commercialisation. Overall, the biofuels market has a significant share of SMEs and small independent private companies for which a financing change from public funding (Grants) to Equity and Debt Financing would be favourable.
2.1. Equity Financing

Equity Finance encompasses both publicly and privately owned companies. Public refers to companies whose shares are traded on stock exchanges and can be bought and sold by anyone. Thus, publicly traded companies are firms whose original owners sell some or all of their equity to investors via official stock markets. The private equity market refers to companies whose shares are not traded publicly, being held by private individuals, business angels, venture capitalists and corporate ventures.

Equity financing may be achieved by using Funds and Venture Capital. Currently, a significant source of capital is funds (such as the EIF or Environmental Funds) established by banks and financial institutions which offer capital to promising R&D projects or the commercialisation aims of small businesses. Most of the time, these funds are based on sources with low interest rates so that the engendering margin can be transferred as a reduced rate from the bank to the investor. The European Union and European private and public financial institutions created the European Investment Fund together with the European Investment Bank. The EIF does not offer loans but instead facilitates guarantees on debt finance and actively invests in risk capital funds. For small and medium sized companies this allows increased access to debt finance as their financial situation is backed by the EIF (i.e. increased equity) and thus makes them more eligible for a loan. One guarantee example of the EIF is the Growth & Environment Scheme within which the EIF offers guarantees for SMEs which are engaged in environmental issues. Furthermore, the European Investment Fund uses the financial instruments, which have been established within the EU Multi Annual Programme for Enterprises and Entrepreneurship (MAP 2001-2005) as the above already mentioned SME Guarantee Facility for guaranteeing, the ETF Start-up Facility for investments in risk capital finances and the Seed Capital Action, which aims at committing
investment managers to seed capital funds which are initiated or supported by the EIF. In general guarantee schemes are limited to a certain percentage of the investment and also entail a maximum share of potential loss.

The equity acquisition via Venture capital is a special investment form in which individual investors (business angels or venture capital companies) offer equity to start-up companies of which they expect a significant market success. Hence, venture capital is a more risky investment but also provides the potential for fast and high Return on Investment (RoI).

Especially interesting for the business development of companies related to the creation of a biofuels infrastructure is the financing access via venture capital networks such as I-TecNet, or the Eurotech Capital, which is a network composed of 14 EU venture capital funds focused on technology. The equity (venture capital) financing programme I-Tec was launched 1997 in order to support micro companies and those SMEs which are unlikely to receive financing from other sources. However, one shortfall of this scheme is the fact that the equity investment will take place after the investment has already taken place. Thus, the I-Tec is leaving the micros and SMEs with the original equity gap. The single difference is that with I-Tec equity those companies only have to bridge this gap for a brief period as they know they will receive the investment soon.

Equity financing using Carbon Credits is based on the idea that CO$_2$ has a price. This idea becomes more and more acknowledged in the international business management.\textsuperscript{11} The concept of the Trading System is simple. First, a limit of total emissions is fixed and second, these allowed emission rates are reassigned to certificates which are placed in a free market in order to be traded. This way the impact of the emissions becomes clear and can be symbolised as “cost of the society”.

Within Europe are various financial institutions interested in purchasing Carbon savings generated by European initiatives. The monetary value which can be generated by selling Carbon Credits may not be high, but it verifies to subsequent investors that the projects are actually engendering an environmental change and that there is a monetary factor involved. The price range offered for one tonne of Carbon per/year varies between €1 and €18.

### 2.2. Capital Access Schemes

So far, capital access schemes have not received much attention in the economic research although they are comparatively uncomplicated and thus don’t demand high bureaucratic involvement. Moreover, it does not imply a high economic investment. Nonetheless, capital access schemes allow public entities to augment the economic value of their budget dedicated to public development by redirecting the investment through a private third party. Examples of where this scheme has been applied repeatedly (although not in the transport sector) are New York and California as well as in the City of Los Angeles Economy Project.

Capital access schemes raise a minor government budget, which is used to arrange market rate loans to companies generally not eligible for common bank loans as their business focus is considered as risky, i.e. biofuels infrastructure or hydrogen and fuel cell technologies.

The following diagram presents the overall concept of Capital Access Schemes:

\begin{itemize}
\end{itemize}
The basic idea is to unite and save the applied fees which have to be covered by the lender as well as by the borrowers. In a subsequent step they are coordinated by a municipal bureau, thus forming a fund to safeguard the lender against loan defaults. If a loan default occurs, this fund will compensate any losses in the eligible loan portfolio. Hence, given the fact that potential losses on the eligible loans don’t exceed 7 to 14 %, this scheme remains favourable to lenders.

The scheme can be implemented with some variations, i.e. it may differ in the following categories:

- Monetary dimension of eligible loan, with or without size cap
- Monetary dimension of loan security fund (up to 50% of the reserve on issued loans)
- Business type of eligible borrowers (SME etc)
- Requirement to be placed in the region or municipality of the participation public entity

This concept may be customised in various forms. A number of Capital Access Schemes will be elucidated briefly within this chapter.

**Within the Capital Access Scheme based on Small-Business Loan Securitisation**, cash flows from an asset may be used to issue securities. The small business loan securitisation demands the pooling of loans or bonds in a portfolio and the backup by assets. Hence, securitisation offers borrowers a possibility to improve their cash flow situation.

Generally small business loan securitisation takes the form of a collateralised loan obligation (CLO) and thus involves the creation of a special purpose vehicle (SPV), i.e. a corporate entity created for securitising assets. This entity takes over shares of a bank loan portfolio and issues asset securities with the interest payments received from this portfolio.
Figure 11 – Small Business Loan Securitisation via collateralised loan obligation

The Capital Access Scheme of Community Investment Notes related to unsecured and fixed-rate instruments with a comparatively low interest rate (between 0 and 3%) available to individual as well as institutional investors. These notes may be issued with different values and be valid for a defined duration allowing the investor to support the fostering of a community by investing in a community development fund. Whereas the main share of the invested money goes into the Community Development Fund, a remaining part and part of the interest earned will go into a loan loss reserve which serves as security for the investors. The size of this loan loss reserve has to be in relation with risks involved with the investment. Commonly a loan loss reserve for investments associated with moderate risks received 1% interest. Along with the risk the percentage increased steadily (3% for moderate risk, 10% for high risk loans). The following figure represents the process of Community Investment Notes as a Capital Access Scheme:

Figure 12 – Community Investment Note

2.3. Debt Financing

Debt Financing is based on Bonds and Mortgages. Overall, the access to debt financing is more complicated for SMEs or arising projects than for larger organisations. In order to
provide a loan to a company, banks expect certain security sources such as a long-term track record in project management or a high equity share in the company. Both criteria are unlikely to be the case in SMEs, micro companies or projects which are still in a defining stage. One option to overcome this financing barrier is the use of certification or guarantees. Overall, SMEs as well as micro companies form the main target groups for Guarantee Networks. Interesting within this field is also the possibility of mutual guarantees, meaning the option to issue guarantees for another within a defined group of companies.

Companies have the possibility to access bonds or new shares (rights issues) in order to improve their financial situation. Funding sources in this field are especially open for companies engaged in the field of environmental development and sustainable energy. The general financing schemes are venture capital investments, project finance as well as corporate finance. Moreover, there are some banks in the European Union, which have an ecological focus. These banks are commonly quite small and thus also offer support on a minor scale. The following table gives an overview of European Ecological Banks together with the countries in which they are accessible.

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<tr>
<th>Bank</th>
<th>Country</th>
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<tr>
<td>Co-operative Bank</td>
<td>UK</td>
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<tr>
<td>Ecology Building Society</td>
<td>UK</td>
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<tr>
<td>European Investment Bank (EIB)</td>
<td>EU Member States</td>
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<tr>
<td>Energy Efficiency Loan Scheme</td>
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<tr>
<td>GLS Gemeinschaftsbank eG</td>
<td>Germany</td>
</tr>
<tr>
<td>Triodos Bank</td>
<td>Netherlands, Belgium, UK</td>
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</table>

Figure 13 – Environmental Banks
The activities of the TRIODOS Bank may serve as an example innovative biofuels infrastructure project financing. Their non resource finance is dedicated to small-scale wind power development.12

Another form of debt financing is the access to subsidized loans, which offer the possibility of low interest rates or long repayment duration. The loans are offered with eased conditions because the lending institution receives a subsidy on the loan. Overall, these loans facilitate the uptake of a loan by a start-up company as the repayment schedule and conditions are not as severe. Low interest rate loans may also be facilitated by selected groups of professionals, industrials, universities or further local stakeholders which create a fund in order to support the local business development.

Especially for small companies or projects another special form of loan is interesting. This loan is the micro credit, which is commonly defined as a loan below 25000 Euro.13 This loan is especially significant as 93% of the 22 million European SMEs are micro companies.14 Debt holders normally have no claim on the company beyond the loan made and the interest payments resulting from the loan, subject to the specific terms of the agreement. However, in the case of the company going bankrupt debt holders will receive payment ahead of shareholders with secured debt holders being paid ahead of unsecured debt holders.

The concept of a Syndicated Loan (also "syndicated bank facility") is based on the joint provision of a loan by various banking institutions. Commonly one bank appears as the Agent which provides a significant share of the loan and then syndicates the remaining loan amount.

12 http://www.triodos.co.uk/ & http://www.windfund.co.uk
to other participating banks. The Agent usually serves as the solely contact between the lending authorities (syndicated banks) and the borrower. Financial Institution are motivated to offer syndicated loans as this allows them to augment their investment portfolio and thus divers their risks. As a result financial institutions which offer syndicated loans are capable of getting engaged in fields with a general higher risk as their individual risk remains manageable. Consequently, this loan concept has the advantage that entities looking for a loan for a higher risk project (as is commonly the case with biofuels projects) have a higher chance to receive a syndicated rather than a regular loan.

Below table states a (non-exclusive) selection of banks which are facilitating syndicated loans.

<table>
<thead>
<tr>
<th>Syndicated Bank</th>
<th>Country</th>
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<tbody>
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<td>Allen &amp; Overy</td>
<td>UK</td>
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<tr>
<td>Bankgesellschaft Berlin</td>
<td>Europe</td>
</tr>
<tr>
<td>Barclays Capital</td>
<td>UK</td>
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<tr>
<td>Citigroup</td>
<td>Europe</td>
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<tr>
<td>Credit Suisse</td>
<td>Europe</td>
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<tr>
<td>Deutsche Bank AG</td>
<td>Europe</td>
</tr>
<tr>
<td>First Bank</td>
<td>UK</td>
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<tr>
<td>Goldman Sachs &amp; Co Inc</td>
<td>UK</td>
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<tr>
<td>HSBC plc</td>
<td>UK</td>
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<tr>
<td>JP Morgan</td>
<td>Europe</td>
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<tr>
<td>NatWest</td>
<td>UK</td>
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<tr>
<td>Royal Bank of Scotland Group</td>
<td>UK</td>
</tr>
<tr>
<td>Standard Bank Plc</td>
<td>UK</td>
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</tbody>
</table>

Figure 14 – Banks offering Syndicated Loans

Throughout Europe a net of Savings Banks has been established. Savings banks are interesting contact points for a project in regions as they commonly maintain strong local and regional ties. In many occasions, savings banks are engaged in local development project as social responsibility on a local level as well as the support to small and medium-sized companies is very important to them. Likewise Public Sector Investment Banks can support the creation of biofuels infrastructure by supporting research and innovation and providing funding in general.

The Higher Risk Sharing Finance Facility (HRSFF) is a financing mechanism of the European Investment Bank and intends to facilitate loan access and intends to foster research, technical development demonstration and innovation investments from private entities due to the catalytic effect which a project awarded with an EIB loan is likely to perceive. Overall, the new scheme allows the EIB to get involved in more risky projects as well as the infrastructure creation and enables an increase of financing volume issued by the EIB. The eligibility to the risk sharing finance facility can take two different methods. One is the way over the participation of a FP7 project and thus the eligibility of a FP7 grant which automatically leads to eligibility for the EIB Financial evaluation. The other road to become eligible for an EIB Financial evaluation leads over the participation in other European Projects. Ideas which pass the EIB Financial Evaluation are evaluated again as bankable RTD projects and if they prove themselves to be bankable, they will receive an EIB Loan.

Another organisation initiative of the EIB is the concept of so-called Global loans - Loans for SMEs through an intermediary. This concept facilitates credit lines to financial institutions, which use these credits to lend the profits further for small or medium-scale investment
projects that are eligible for loans of these banks. The intermediary bank is therefore the contact point for loan requests. Eligible entities are in general local authorities or small or medium sized companies with less than 250 employees, an annual turnover not exceeding € 50 million and an annual balance sheet of up to € 43 million. The type of eligible projects is limited to projects dealing with new capital investment of up to € 25 million and should be carried out by SMEs or, in the case of small infrastructure projects, by local authorities. The investment type should be of corporate nature in advanced technologies, R&D projects, rational use of energy, environmental protection, water supply and sanitation projects, other infrastructure projects. Entities from regional development areas are especially eligible for this loan scheme. The loans are limited to a maximum of € 12.5 million and may cover up to up to 50% of the investment costs.

**AFV Procurement**

1. **Procurement Stimulation of Alternative Fuel Vehicles**

In order to increase the market demand of an early market, the grouping of buyer pools is advantageous. Buyer pools allow reaching economies of scale even if the single product price is still high above the average market price. Another aspect which favours the early market development of a new technology is an increased access to leasing facilities. When thinking about the AFV market stimulation it is important that new intentions and actions don’t separate this market from the traditional vehicle market as this would obstruct the real market development. Instead AFVs should be presented as additions to the existing market.

The public procurement takes a significant share of the overall procurement in vehicles. Thus, it could be interesting to engage public entities in new procurement schemes as often and intense as possible.

New technologies need a reliable political framework in order to attract consumers on a long-term basis. As a result, it is important to engage in standardization and harmonization of European policies in the support of the AFV market.

From a governmental perspective there are different possibilities to stimulate the procurement of alternative fuels as well as of alternative fuel vehicles on a local level.

- **Fiscal Measures:**
  - Use of duty exemption and reductions on mineral oils which may be used for any pure or blended biofuels to decrease end-user price, e.g. the fuel price which end-user pays at a filling station. The exemption may be based on a quota or can be a simple refund.
  - Use of an exemption CO₂ tax on energy products which will decrease the cost disadvantage of biofuels
  - Local Tax benefits for the use of certain fuels

- **Communication Measures**
  - Public Awareness Programmes initiated by the public (government) or market partners (manufacturer, fuel provider)

- **Public Measures**
  - Involvement in subsidised research and development as well as demonstration projects
  - Public initiative to open tenders for the supply of alternative fuel vehicles
  - Local Governments could substitute their public fleets (i.e. police fleet, ambulances) with alternative fuel vehicles
- **Policy Measures**
  - Establishment of EU, National, Regional or local obligation to substitute a certain percentage of traditional fuelled vehicles (or vehicles which exceed a certain emission per unit) for alternative fuelled vehicles

- **Market Measures**
  - Establishment of voluntary agreements, e.g. vehicle manufactures agree to increase their production efforts in vehicles with lower emissions

Commonly the measure of Excise duty is used most frequently related to the stimulation of the biofuels market. Furthermore, the national R&D programmes are of significance. The following table gives an overview of measures applied in Europe and identifies the countries which are implementing them:

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**Figure 15 – Stimulation Measures**

2. **AFV Procurement Schemes**

Fleet owner may choose to either purchase, lease or rent vehicles in order to create a fleet. When discussing different payment options it is important to distinguish between incremental costs and overall product costs. Incremental costs of a product include the following sub-costs for any additional unit of a product related to:

- material
- manufacturing
- labour
- packaging
- royalty
- distribution

Additionally to these costs, calculations based on overall product costs include the costs related to
- research
- development
- advertising
- interest on working capital
- capital invested in facilities used for manufacturing, research, marketing, administration or any other activity
- depreciation and maintenance costs of above mentioned facilities

and any element of profit.

AFV Procurement schemes are Purchase models which may be applied to the acquisition of alternative fuel vehicles. These models may not be exclusively used in relation to the AFV procurement but can be applied nonetheless.

Whenever new and untraditional financial schemes are employed, it is important that the national as well as European regulations are consulted as national codes and standards as well as specific national taxes may prevent the successful implementation of a financing scheme.

2.1. **Progress Payment**

Traditionally the duration between the order of a transit bus and the actual delivery may be a significant amount of time (one-to-two years). Likewise the payment for such an order traditionally takes the form of a lump sum payment after the delivery has taken place. As a result to this payment the bus manufacturer may be forced to issue a short-term loan in order to finance the manufacture expenses. The interest rates of this loan are generally passed on to the buyer in form of an increased selling price.

This traditional payment concept has the advantage of security for the purchaser. Despite this advantage, both entities would benefit from a decreased price. If they come to an understanding that the purchaser pays progressively along the manufacturing process, e.g. along the expenses which the manufacturer has to bear, then a short-loan may be not required and the manufacturer has no reason to increase the selling price. This Progress Payment concept would mean that the purchaser pays for the completion of individual components whenever these components have been fully manufactured.

As a payback for the period payment, the purchaser receives a decreased price. Hence, the manufacturer only has to finance the manufacturing process for limited (and significantly shorter) time spans and thus saves the money currently spend on the interest rates of short-term loans.

The overall savings on both procurement sides of the Progress Payment concept may vary depending on the degree / monetary commitment of the Progress Payment rates. The more the purchaser is willing to pay in advance to delivery the less likely is the necessity of a short-loan on the manufacturer’s side. Degrees can be set between the progress payments solely for the materials or the progress payment for materials plus labour costs up to the defined time.

Important steps and aspects of the Progress Payment procedure are stated below:
In advance to using progress payment a contractual agreement has to be drawn up between the procurement partners which defines

- the payment details
- the kind of evidence the manufacturer has to provide in order to proof single manufacturing stages have been competed.\(^{15}\)
- that progress payment rates are not advance payments
- that all costs and payments have to be documented
- Penalties for late delivery (or non-delivery) of the vehicle

In advance the net present value of the procurement order has to be calculated for the progress payment method and then should be compared to the net value which arises under lump sum payment.

Additional bureaucracy costs (administrative costs) under the progress payment scheme have to be included in the initial net present value calculations.

To avoid the risk of never receiving the product plus the risk of not receiving the progress payments rates, the procuring entity may demand the purchase of performance bonds\(^ {16}\) with the same value of the payments.

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**Figure 16 – Progress Payment**

2.2. **Cross Border Lease**

A company buys vehicles in their country and then sells it to an investor in another country. In a second step, the same company leases their former vehicles from the investor. Foreign investors (the leasing company) have the formal propriety rights of the vehicle and receive tax benefits for depreciation in the home country. This investor shares the monetary benefit with the lessee so that the lessee may even lease a car for less than the original procurement price. The share of depreciation benefits which the original purchaser receives has to be manifested in leasing contract.

**Key points:**

\(^{15}\) This evidence may take various forms such as purchase invoices for progress payments related to purchased components.

\(^{16}\) Bond offered by insurance companies which guarantee the termination of a project / procurement, e.g. in case of bankruptcy the entity will receive compensation to the degree of already issued progress payment rates
- Which countries have higher depreciation rates?
- Who could be an investor?

In order to implement this scheme, legal advice is necessary and leasing amount has to be high as transaction costs are very high as well. The depreciation structure is the focal point of this financing scheme. Hence, the decrease of the value of a vehicle goes along with a tax. In order to be really effective European vehicle purchasers have to form a partnership with a non-European company, for example from Japan. Thus, the foreign investor receives the property rights for the vehicles and may generate tax benefits in their country.

Figure 17 – Cross Border Lease

2.3. Shared Savings Plan – a case example

The procurement model of the Shared Savings Plan is based on the case example which is taking place in Egypt since 1992. In the existing case, the market penetration of natural gas vehicles was fostered and resulted as well in the establishment of 128 natural gas filling stations.

The main target groups in this scheme are individual vehicle owners such as taxi drivers, but the scheme also could be attractive for private sector fleet owners. Three crucial aspects for the success of this scheme are incentive continuity, governmental as well as Bank involvement.

In the Egypt case a Public-Private Partnership was founded in 1991/93 which served as the initiator of various pilot projects and organised funding and standards criteria for the successful development of the scheme. Until 1996 the development staggered and remained on the same market penetration level (180 NGV vehicles, 5 filling stations). In 1996 however, the Nassar Bank (Egyptian bank with governmental shares) facilitated the funding for the taxi conversion to CNG and thus allowed a CNG price advantage as compared to other vehicles. For the vehicle procurer this means that the bank facilitates his payment for a vehicle conversion so that he can have his car converted. The government benefits from lower pollution which is its main motivation. The driver gains the advantage of cheaper fuel. The bank on the other hand has an incentive to participate as it receives paybacks on long-term, gains in his image and possibly gets new customers.

This monetary incentive continued and resulted in the steady increase of NGVs as well as the parallel creation of NGV filling stations. Up from December 1999 commercial vehicles have to use natural gas, which served as another driver for the steady market development. In 2002, a “Gas Card” system was introduced, which included a loan pay-back system that took
advantage of the CNG diesel price differences. Thus, the price for CNG is the normal price (including taxes) plus a fixed amount which is returned directly to the Bank. Yet, this fuel price still has a price advantage to the diesel price. In other words, the driver pays the full price of petrol until the loan is repaid, and the bank receives the price differential between petrol and natural gas as the loan repayment. On a large scale the bank continues to receive repayment on its loans as the money is ‘regenerated’ back to the customer in the form of new loans.

This served as another significant incentive which was supported by the 50 % diesel price increase of 2004 and the expectation of a tax reduction on CNG equipment. By 2006, the market development had reached a total of 81000 natural gas vehicles and 128 natural gas filling stations. Hence, the shared savings scheme has proved itself very successful in the Egypt case.

![Figure 18 – Shared Savings Plan - Egypt](image)

2.4. **Leasing with obliged insurance (LoI)**

The underlying thesis of this financing scheme is the assumption that procurement on a large-scale allows economies of scale. The scheme itself pursues the following steps / incorporates the following aspects:

a) Independent entity (Insurance company) joins individuals in a buyer pool, committed to buy / lease a certain vehicle for the price X

b) Entity procures high number of AFVs to a lower price/vehicle than possible on single vehicle procurement

c) This entity either
   - sells cars for same price, thus allowing a decreased market price
   - leases cars without interest so overall price = original procurement price

d) Part of sales / leasing contract is the obligation to insure vehicle with this insurance company

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In this scheme leases have to be interest free, don’t obliged the lessee to a down payment, last for the life of the vehicle, and have a monthly payment equivalent to the cost of the vehicle divided by the vehicle lifetime. The scheme will only function beneficially if these aspects are given.

To assure loan repayment, this scheme demands that each lessee insures its vehicle for the full replacement value and maintains a lien on the vehicle title until the lease is fully paid. Hence, the original purchaser keeps the property rights of this leased vehicle until the termination of the lease period.

2.5. **Joint Procurement / Buyer Pool procurement**

Similar to the savings pack of a product found in the grocery store, an increased procurement of the same AFV at the same time will decrease the price per unit. This augmented demand decreases the price per unit as a natural economic result. The key to a successful market penetration of AFVs is therefore an increase in demand. From the manufacturers’ perspective, this money can be reinvested in the technology and producing circle in order to allow improvements, a more efficient production and the realisation of economies of scale. As a result the production price per unit decreases and the producer can decrease the sales price without lessening its profit margin.

A joint procurement of various private or / and public buyers triggers the overall demand and can decrease the sales price. In general terms, joint procurement is the collection of different procurement demands from different entities.

An existing and successful example for a joint procurement of alternative fuel vehicles is the AFV acquisition within the ZEUS project. Within this project more than 1000 zero and low emission vehicles were jointly purchased by eight European cities and enabled the realisation of substantial economies of scale.

Additionally, joint procurement should be considered by entities from different EU countries in order to allow everyone to get access to the lowest price possible. As an alternative fuelled vehicle of a certain type may cost a substantial amount more in one EU country than in another, a cross – border joint procurement may enable two benefits at once: the access to the lowest price within the EU and the realisation of economies of scale.

The traditional procurement procedure can vary from company to company as no fixed standard has ever been set or is legally dictated. In a joint procurement process these different procurement methods have to be aligned in order to follow a mutual procurement procedure.
which is functions effectively and allows the highest economies of scale. In the process of this alignment the following aspects have to be considered in order to reach a significant degree of uniformity:

- Procurement cycles (how long until the next procurement)
- Procurement size (Procurement as soon as demand for one unit is there in general procurement of more units…)
- Framework Contracts over several years for further procurement
- Existing binding agreements
- Vehicle selection
- Harmonisation of procurement documents (e.g. documents for ordering, billing and payments
- Average prices which entities are capable of paying
- Timeframe which passes between ordering and delivery of vehicles
- Individual payment methods according to how they have been done in the past.
- Technical and environmental specifications

A recent example for the creation of a European public buyer pool is the anticipated joint procurement of hydrogen busses. This buyer pool is consolidated in the signing of a Memorandum of Understanding which is supported by six European cities. The Memorandum of Understanding to jointly procure Hydrogen Busses has been signed in the presence of European Commission Vice-President and Energy Commissioner Jacques Barrot at the HFP General Assembly on October 5th, 2006. With this memorandum the signing authorities committed themselves to co-operate and work together with regards to the procurement of hydrogen buses for public transport. They also agreed to share information on the technology, infrastructure, planned procurements and tender procedures. The entities which have already signed the Memorandum of Understanding are representatives of:

- GVB Amsterdam, City of Amsterdam
- Transporte de Barcelona S.A., City of Barcelona
- Berliner Verkehrsbetriebe BVG, City of Berlin
- British Columbia Transit, Province of British Columbia
- Hamburger Hochbahn AG, City of Hamburg
- London Bus Services Ltd., City of London
2.6. Third Party Finance – Investing scheme on fuel savings

Third Party Finance can be connected to long-term fuel savings. To achieve a win/win situation based on fuel savings three entities are necessary. One entity (company X) contributes to the initial procurement costs with a certain percentage and thus reduces these costs for the real procuring entity (company Y). This investment by (X) is refinanced by cost savings which arise due to fuel cost savings and the improved efficiency. Once the payback of the initial investment plus an interest rate is complete, (Y) benefits from the continuing fuel savings. The details of this scheme have to be calculated according to the individual procurement size and possible fuel cost savings.

Entity (X) benefits in form of secure interest on his investment plus the possibility of marketing a good image connected to the procurement of alternative fuel vehicles. If the procured fleet runs in public rather than solely on industrial premises they may serve as additional marketing space for (X) by adding a sticker to the vehicles which states that (X) has facilitated the procurement. (Y) on the other hand is enabled to procure an alternative fuel fleet as his higher initial procurement costs are taken away from him and he does not suffer an additional financial force compared to the procurement of a regular fleet. Instead he benefits in the long-term by achieving further fuel cost savings (which in the long term exceed the initial higher procurement costs) plus (Y) benefits from the positive image related to the AFV procurement.

In order to be successful this financing scheme has to calculate the possible fuel savings for the individual fleet in advance to any procurement contract. It has to be validated in advance that fuel cost savings will be generated by the new fleet. Part of this financing scheme should be an intensive marketing strategy the increased public awareness and positive company image play a significant role in this strategy.

2.7. Further Cost Reduction options of AFV Procurement

The reliance of local productions of alternative fuels is the basis of a scheme which involves the establishment of a voluntary agreement among agriculture and industry within one community. Farmers offer crops for a cheaper price and receive the fuel in return to run their own vehicles. Although this scheme does not facilitate the procurement itself it offers a long-term decrease in the total cost of ownership. Overall, it creates a no costs, no profit situation on both sides.

Another option of realising overall cost reductions is via cost compensations via additional revenue source. Within this scheme an additional revenue source has be developed so that
earnings from this source can be used as marginal compensation for the higher purchase price. For example, a company may use their AFV as additional source of income in the non-labour time (meaning the time the vehicle is normally not in use). These additional sources of income may be the rental for demonstration, i.e. at technology fairs and exhibitions or for the use of marketing reasons. However, this only allows a small change in the total costs of ownership.

Furthermore, it is possible for a private company to access public funds via the creation of a Public Private Partnership (PPP). The private company joins with a public entity and forms a PPP, thus qualifying for public funding sources. As a result the entity can access and utilise mixed loan equity models for their procurement. Moreover, the attraction for other investors and procuring partners increases as the participation of a public entity is likely to enlarge the overall confidence in the project. Another significant point is that existing public funds may be shifted from production support to investment support, thus facilitating the procurement. Overall, the creation of a PPP won’t lead to more funding, but will facilitate the access to public funds. Hence, the need for expensive loans decreases.

**Financing of Projects dealing with renewable energy sources, the creation of infrastructure and AFV procurement**

In general, renewable energy projects can receive financial support via certain governmental incentives or have to turn to other financial resources. Governmental incentives are investment subsidies, feed-in tariffs, payback regulations and tax regulations, such as:

- Flexible depreciation of renewable energy investments
- Favourable tax treatment for third party financing
- Start-up subsidies for new production plants, for SMEs and new job creation
- Fiscal measures for consumers to purchase RE equipment and systems.
- Market incentives to increase the market share of renewable energy sources

The costs of encouraging renewable energy investments and further deployment of renewable energy technologies include the direct costs of incentives, such as capital costs, output subsidies, tax rebates and costs of promotion, dissemination, training, education campaigns. They also include indirect costs, such as those of implementing legislation, standards or other regulations that promote the use of renewables.

**1 The concept of Project Finance**

Project finance is an ideal form of financing for the installation of infrastructure supporting the use of biofuels. On the Spanish financing market, project finance concepts have been applied since 1993. As project finance appears in different forms no stand alone definition exists. Nonetheless, the following definition takes into account the basic and most common characteristics of the Project Finance concept: “The financing of the development or exploitation of a right, natural resource or other asset where the bulk of the financing is to be provided by way of debt and is to be repaid principally out of the assets being financed and their revenues.”

Financing through debt, includes mechanisms to facilitate the financing of projects by means of Project finance. Traditionally, financing often uses Corporate Financing Models instead of Project Financing Models. Yet, especially for RTD projects it can be difficult to support and thus monetarily commit the often heterogeneous project promoters (corporate finance) instead of supporting a stand-alone project company (project finance) and thus the RTD project itself.

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18 Denton Wilde Sapte International Projects Group, A guide to project finance, p. 2.
Figure 21 – Corporate & Project Finance

The classic Project Finance scheme can be used for the creation of infrastructure and thus is applicable to the business development of companies aiming at the creation of a biofuels infrastructure. The project finance scheme is based on the idea that later generated cash flow is used to repay the debt payment rates of a loan which was issued to finance the project. Thus, the main difference between corporate and project finance is the transference of responsibility. Whereas the promoter is reliable with his assets for the prepayments in the corporate finance model, the financial responsibility is therefore shifted from the company to the project itself. It should be noted that although the EIB “Project Finance” scheme offers a very interesting approach it is not yet viable for small companies.

Project Finance contains a complex financial structure where project debt and equity spent to finance the “project”, i.e. infrastructure creation are repaid from the cashflow which engender from the infrastructure creation itself instead of being repaid by the general assets of the project proprietor. Hence, the financing of a project financed via project finance is classically secured by the project itself, including all revenue-producing contracts which emerge from the outcome of the project (i.e. contracts which are generated due to the existence of a biofuels infrastructure). Normally, the application of project finance goes along with the creation of special purpose corporations (SPCs) which work in individual contracts for each other. This concept has the advantage that it reduces the overall risks intertwined with the project objective (in this case the creation of biofuels infrastructure). Apart from SPCs a project finance case includes equity providers, such as sponsors or syndicated loans issued by a syndicated bank.

One of the downsides of project finance are the (comparable to other financing forms) higher costs of financing, the main advantage is the spread risk.

Below a basic case of applying project finance for the creation of a biofuels infrastructure is demonstrated and states the main responsibilities and financing roadmap. It should be noted that this case is kept rather straightforward to clarify the underlying concept of project finance. In a real market application this case would be more complicated and involve more stakeholders.

We assume that two local partners are interested in the creation of a bioethanol plant. Partner A may be a biomass provider and partner B may be a bioethanol consumer. As a starting point these two companies should come to a contractual understanding related to their monetary as well as labour participation before forming a joint venture to pursue the creation of the bioethanol plant. This joint venture should take the form of a special purpose corporation (C) distributing the company shares according to the individual investments. However, the new company won’t have individual assets with which it may secure financing. In order to construct the bioethanol plant, the company contracts another company (D) and pays them with financing received from a bank (E). This bank also hands out a guarantee to the construction company (D), assuring that the newly created company (C) will be in the position to pay the contract. The original two companies form another SPC which is supposed
to run the bioethanol plant. The propriety remains however in the hands of the first SPC (C) which was created. By applying this concept the two original companies avoid any risk of having to secure with their own assets as they are neither the proprietor nor the plant managing entities. However, the SPC managing the plant can close Sales and Purchase Agreement contracts with the two original companies and contracting partner A for the supply of biomass as well as partner B providing partner B with the desired bioethanol.

2. EU financing sources for Renewable Energy projects

Due to the fact that EC financing only covers a share of the overall budget costs it is advisable to search for third party investors to cover the remaining financing. For the investor the work performed in the frame of a European project is still cheaper as if financed alone and the project conductor benefits from a 100% financing of their labour invested into the project. Of course, the financial support of a third party investor has to be clearly indicated in all related contractual documents.

For the European Union, the Directorate General for Transport & Energy (DG TREN) is responsible for the energy policy. The promotion of renewable energy is a major feature of the European Climate Change Programme (ECCP). 19

Within the Strategy and Action Plan formulated in the EC White Paper on RES in 1997, the EC formulated market penetration aims for renewable energies (12% by 2010) which has since then been frequently revised. The underlying objectives of the Strategy remain concentrated on

- internal market measures, such as grid access, fiscal as well as financial measures
- improvement of community legislation and policy support
- collaboration among different member states

Consequently, a large number of EC funding options is available related to R&D, community as well as the stimulation of regional business development.

Conclusion

In order to reach viable marketability it is important for biofuels and the biofuels infrastructure to move away from public funding and rely more on other financing mechanisms. The European Union can and already is supporting the stimulation of marketability by harmonising administrative procedures and fiscal measures among Europe. Moreover, the European Action Plan for Innovation foresees the following measures for the advancement of financing of innovation:

- investment stimulation in venture as well as equity capital, predominantly in the form of seed capital
- supporting a trans-European capital market for innovation similar to the American NASDAQ;
- stimulating networking between market partners and financing providers

The final and critical factor of success in the AFV market remains the consumer. Hence, public awareness has to maintain a significant share of all AFV actions. The consumer has to fully comprehend and appreciate his personal advantages of an increased AFV market as well as has to be aware of the general benefits which these new technologies offer society. As a conclusion, powerful communication strategies play an important role in the promotion of the AFV market. Any communication strategy should therefore inform the consumer of the new possibilities and increase his overall knowledge in this field.

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19 “European Climate Change Programme” (ECCP), Commission, June 2001
In general, a successful communication strategy should address private as well as public entities and influence them to increase their procurement in the AFV market. These private entities may be key decision makers as well as the general public.

Despite existing financial support, the creation of biofuels infrastructure is likely to remain based on entrepreneur initiatives and investments. The main barrier remains the initial access to financing for the company start-up as explained in this document. Especially the realisation of long-term loans remains difficult and retreat to obtaining venture capital.
Bibliography


Denton Wilde Sapte, International Projects Group, A guide to project finance, London


Lehman Brothers Ltd: Overview of Transportation Public-Private Partnership Project Financing, Combining Private Equity, Economic Development and Transportation, December 2003

Mínguez, Javier: La Comunidad Valenciana Socio-economical context, IMPIVA, Presentation, Latí Finland, 29th November, 2006


Seisler, Dr. Jeffrey M.; Emerging Models of NGV Market Development, United Nations Working Party on Gas, January 2005

TRIODOS, webpage http://www.triodos.co.uk/ & http://www.windfund.co.uk