business solutions for a sustainable world

A solutions landscape for Tilburg Netherlands

The Urban Infrastructure Initiative – UII

wbcsd urban

Introduction

A group of global businesses have worked with Tilburg to find ideas that can accelerate progress toward the city's climate neutral vision.

The companies are part of a unique project (the Urban Infrastructure Initiative or UII) bringing multi-sector expertise to help cities achieve their sustainability visions. A group of five companies together with WBCSD (AGC, CEMEX, Schneider Electric, Siemens, and TNT) active in energy efficiency, equipment, materials and logistics pooled their resources to identify practical solutions. Tilburg's climate vision was the focus. Housing, transport, business estates and energy supply were the target areas.

Company experts, city officials and representatives of local businesses took part in workshops in Tilburg City Hall in September 2011. The workshops addressed the key opportunities to tackle carbon emissions identified in initial engagement between UII members and city officials.

Ideas generated by the workshops include a manifesto to improve building energy efficiency, an open network for deliveries in the city center, and a total cost of ownership approach to business parks.

The workshops demonstrated the value of providing early business input to city thinking. They allowed city officials to consider a variety of ideas, and to engage with businesses collectively in a broad context rather than in relation to specific tenders.

Tilburg is one of several cities around the world to work with UII. They all have an ambitious sustainability vision, and are eager to work with the private sector to transform the vision into action. The specific solutions identified for cities with very different circumstances and challenges will help to advance urban sustainability everywhere.

Tilburg – ambitious climate plans

Tilburg is the sixth largest city in the Netherlands, with a growing population of just over 200,000 at the start of 2011. Its ambition is to be climate neutral and climate resilient by 2045 – zero net carbon emissions and protected against climate change effects.

This ambition is part of the city's vision for the kind of place it wants to be in the 2040s. The vision is based on five underlying trends, and covers eight city "domains" or aspects of city life.

The trends, identified through dialog with Tilburg's people, cover individual and corporate influences, ranging from fluidity in social interaction to lifelong learning. The key trends relevant to the UII dialog are:

- Sustainable – technological, economic and social innovations will change the structure of society, and especially energy consumption and production, driven by economic as well as environmental factors.
- Working together – increasingly flexible and unpredictable relationships between companies and between local authorities and companies, with shorter cycles of ideas and products.

Tilburg is responding to these trends by way of an "expedition", so called because the city is searching for new answers to urgent questions, identifying practical solutions through social innovation. Expeditions are planned for eight domains, including safety, education, caring and attractiveness of the city. The key domains for the UII dialog are:

- The city that works – Tilburg will need to be adaptable and dynamic to deal with the national trend toward worker and skill shortages. Smart logistics, multimodality and maintenance, as well as leisure and the services sector, are potential growth areas.
- The sustainable city – Tilburg is a sustainability leader in the Netherlands but new policies are needed to realize the ambition, especially concerning the energy efficiency of the housing stock. Creating enthusiasm with social partners, citizens and the business community is a big challenge.

Climate change is a given. We face the challenge to tackle this together. With Green Deals we want to generate innovative and greener solutions, lower societal costs, better results and wider involvement of stakeholders.

Berend de Vries
Deputy Mayor of Tilburg

Action on climate goals

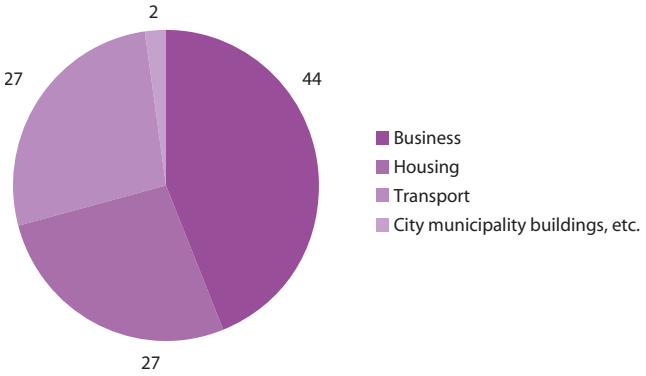
Recognizing the need to involve all actors in creating a sustainable city, including a strong role for the business sector, a series of consultations led to the creation of a multi-sector network to tackle climate change. A Climate Board, initially under the chairmanship of a city alderman (or councilor), is responsible for directing the Climate Program. It is a dynamic and growing body of Climate Alliances, each focusing on one sector/target group. The Climate Board is set up to become an independent multi-sector local authority on climate issues.

The Climate Board adopted its first, three-year Program in 2009. It set intermediate targets for CO_2 emissions reduction of 5% by 2012, 30% in 2020 and 60% in 2030. These targets are for the whole city, not only the municipal organization, which is directly responsible for only about 2.5% of the city's total emissions. The city's Climate Board estimates that the main contributions come from businesses, transport and housing (see figure 1).

The Climate Program includes 38 projects, nine of which have already been completed. They are mainly concerned with energy efficiency and renewable energy, with a significant focus on buildings. The Program recognizes the need to change the behaviors of individuals and businesses, and several projects tackle this area.

The city sees its role as challenging, facilitating coalitions, building the case for action. It is one of the stakeholders rather than the source of funds or regulations that will make others act. Tilburg pursues new governance where the Climate Program will evolve into an action based program in which Green Deals, set up by the Alliances themselves and other initiatives, form the core. Green Deals with business are expected to provide environmental and economic benefits.

Figure 1: Tilburg share of CO_2 emissions based on final use in % (2010):



Dialog to sketch a potential solutions landscape

Initial engagement between the UII team and the city, facilitated by the local government sustainability organization ICLEI (Local Governments for Sustainability) who participated positively in this exercise, identified the climate vision as the focus of the UII contribution. The vision was impressive, and a plan consisting of 38 projects had been developed, but the city needed to add new elements to the plan to achieve significant progress, especially with the involvement of the business sector.

UII worked with the city of Tilburg and local business organizations to help to translate the 2045 climate neutral vision into hard plans to be implemented in the near future. This is in line with the UII objective of providing support to early strategy development, and builds on the WBCSD Pathway to 2050[1] which identifies actions needed for sustainability, beginning now.

Discussions centered on four building blocks, each of which could contribute carbon reductions with the right solutions:

- Business parks, which provide a third of the city's employment.
- Buildings – residential, commercial and industrial.
- Transport – especially the transport of goods around the city.
- Energy use.

1 Available at http://www.wbcsd.org/vision2050.aspx

UII and Tilburg's environment team devised a workshop structure to identify potential solutions for each of these issues. In the workshops, experts from UII companies, the city and local organizations pooled their expertise, combining know-how across individual specialties. The involvement of local business helped to assess the potential of the ideas discussed and to identify action needed to implement them.

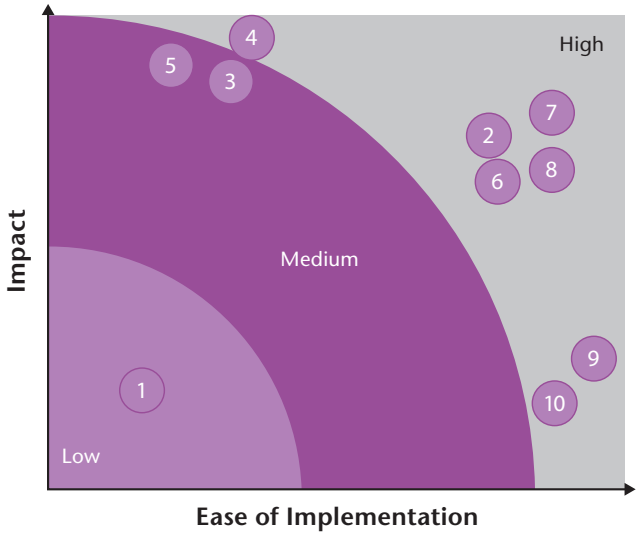
I am very happy that for the first time global businesses came to us to help with our dilemmas. I have heard some really good practical ideas.

Anita van de Looij
Director Sustainability, Energy & Environment department
City of Tilburg

The workshops identified potential solutions suitable for further exploration. In each case, the teams considered how each idea could be realized, and any partners who could join a collaboration. The emphasis was on early action to begin moving rapidly toward carbon neutrality for Tilburg.

The whole group explored each of the ideas developed in the workshops, considering climate impact and feasibility from an economic, practical and political point of view. The city representatives prioritized the opportunities based on their potential sustainability impact and their feasibility. The chart shows the results of this prioritization.
The ideas are elaborated in the following pages.

Figure 2: Prioritization of the ten ideas explored



1. Business park Internet marketplace.
2. Total cost of ownership approach to business parks.
3. Requirements (sticks) for building energy efficiency.
4. Replacement of inefficient houses.
5. Energy label obligation.
6. Comply or explain on zero emission building.
7. Showcase city buildings.
8. An open network for goods delivery.
9. A building manifesto for Tilburg.
10. A business green guide for the city.

Opportunities to achieve the vision

The dialog in Tilburg identified 10 ideas to help advance the city's sustainability ambitions. They varied quite widely in practicality and impact, but all could help to reduce carbon emissions. The ideas relate to the three building blocks where the city has the greatest potential for action: business parks, buildings and transport of goods. One group of participants discussed energy supply, but the ideas that emerged fell into the category of building energy efficiency.

Business parks

One third of Tilburg's employment is on business parks around the city, especially eight major sites on the outskirts. Upgrading these sites could significantly cut energy use and "future-proof" the locations, supporting the city's economic development.

Some of the buildings date back to the 1960s, and are ripe for renovation. But it is difficult to achieve concerted action because as many as 200 different businesses could be occupying each of the larger parks. Many are small, with an average of between eight and nine employees per company. Businesses need to be able to see the business case for change, perhaps demonstrated by one or two leaders who can show the way.

Solution 1 – Internet marketplace

As business parks host a large number of companies spanning many sectors, there is potential to improve the efficiency with which they use energy, water, transport and other resources, by combining their needs.

If businesses could find others on the same business park with complementary needs, they would be able to reduce waste and shipments of materials in and out of the park. For example, one or more companies might be able to use the waste products from others as raw materials, or as inputs to recycling operations.

The Internet marketplace would bring complementary businesses together, and allow them to match supply and demand. Because these marketplaces are geographically concentrated, it may be economical to move the complementary goods physically from one business to the other. The transport of heat, for example, is only economic over short distances.

Considerations

- Tilburg would sponsor a pilot program to demonstrate the potential, and stimulate business park managers to develop schemes at each location. Some regulatory changes might be needed to facilitate waste movements, and investment in smart grid technology could be necessary to enable energy swaps.
- The initial pilot scheme could take place on an existing park or on a new development, such as Vossenberg West 2.

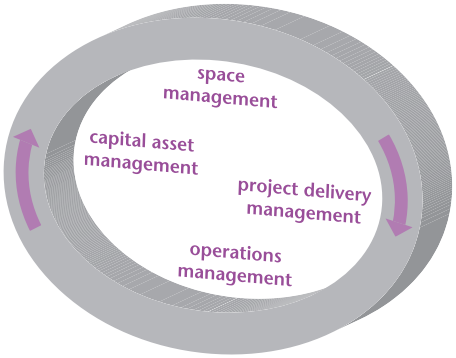
Solution 2 – Total cost of ownership

Short-term thinking is a major impediment to energy-saving investments because the initial cost often deters businesses, even though they will save money in the long run. Introducing a new business model for the business parks could overcome this barrier.

The prevailing model is that individual companies buy lots and the city is responsible only for infrastructure and public areas, which are managed by a park management organization. The companies are responsible for the regular maintenance of their own land and buildings.

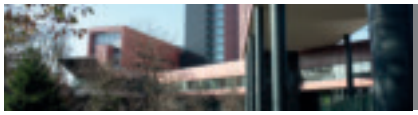
Alternatively, the city, or a private developer, could remain involved in the whole park, renting space to companies rather than selling the land.

The result would be a new outlook on costs, because companies renting space are more likely to look at the total monthly or annual cost, instead of focusing on the initial investments required for environmental improvements. In that case, the subsequent savings would encourage initial investments. The park developer (whether the city or a private company), would also be able to realize economies of scale in contracts with suppliers for aspects such as maintenance of the buildings and public areas, energy supplies, telecommunications and security. This could make environmental improvements more viable.



Considerations

- Tilburg needs to adopt a different approach to business parks. Ideally a business park owner would be involved in all aspects, from design and build to maintenance and operations. The first business park to be developed in this way would be a showcase to encourage further progress elsewhere.



Buildings

As with every modern city, buildings are responsible for a large part of Tilburg's carbon emissions. Research by the WBCSD Energy Efficiency in Building project (EEB) found that the huge potential to reduce this contribution is only likely to be realized by a combination of measures, including occupants' behavior, achieving a holistic approach rather than adopting piecemeal actions.

New buildings are covered by regulations which require high standards, but the existing housing stock is more difficult to address. One approach is to introduce requirements when a property changes hands. Energy Performance Certificates creating a label (A to G) will become mandatory from July 2013 for buildings which are constructed, sold or rented out to a new tenant or buyer.

The city has a covenant with the housing associations owning social housing which will see 4,000 properties raised to 'B' energy efficiency level, with no increase in rents for the tenants. Single-family private housing has proved the greatest challenge. Owners have been unenthusiastic about several approaches the city has tried.

Tilburg aims to tackle non-residential buildings by seeking alliances with business and leading by example with municipal buildings. The municipal organization aims to be CO_2-neutral by 2015.

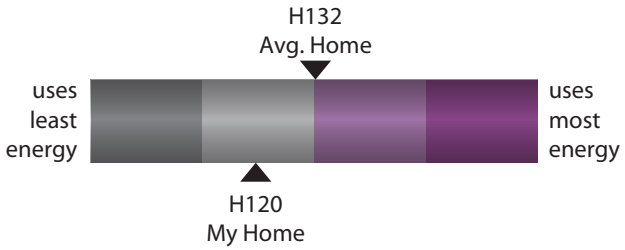
Solution 3 – Mandatory requirements for building energy efficiency

Incentives (or "carrots") have not attracted enough interest from private homeowners. "Sticks" or mandatory requirements appear necessary to achieve more substantial action.

Several possible "sticks" could be introduced:

- Highlighting the least efficient houses (G energy label).
- Prohibiting the sale of houses labeled F and G, thus forcing homeowners to improve their houses if they wish to sell.
- Adjusting local taxes so they are inversely proportional to energy efficiency houses with the lowest labels would pay more, while the most efficient would pay less. (Currently local taxes are typically higher for energy efficient houses because they have a higher value).
- Limiting air conditioning use by introducing a temperature limit for thermostat settings, similar to the Japanese approach.
- Sending homeowners a monthly energy report (once smart meters are installed).

Electricity Costs 3/5/2010 – 4/5/2010



Considerations

- It is politically difficult to introduce new regulations at the local level so it is important to think of this approach as opening up opportunities to improve the housing stock as well as meeting climate targets. The requirement to comply could also be matched with a smart approach to regulation such as relaxing some building regulations for highly energy-efficient developments.

Solution 4 – Replacement of inefficient houses

Some of the least efficient houses are also in poor condition or unattractive locations. Many owners would like to sell but cannot find buyers. In some streets many houses have been reported to be for sale.

A solution to these homeowners' dilemma would be for the city to buy the properties. Tilburg would then demolish and redevelop the streets, creating more sustainable neighborhoods that contribute to the 2045 target. This would enable a holistic approach to sustainability, rather than the piecemeal approach that homeowners tend to adopt. It could extend beyond the individual houses to include communal areas and a modern energy and communications infrastructure. Once redeveloped, the properties would be sold on the open market.

Considerations

- The city may be reluctant to risk investing in this way. An alternative would be to support the acquisition and redevelopment by a private company or housing association. Additionally, this solution would create many jobs, as it is labor-intensive.

Solution 5 – Energy label obligation

A change of ownership or occupation is a key point at which intervention may be possible to improve the energy efficiency of a house. The market may lead to homeowners improving their properties to meet higher label requirements, but this is likely to be a more gradual process for houses than it has been for domestic appliances.

The improvement process could be accelerated by introducing a requirement for every property to achieve a "label jump" of at least one level whenever it is sold.

As people move on average every seven years, and advancing one label level represents a 5% improvement, this would increase energy efficiency by approximately 25% over 35 years.

Considerations

- Piecemeal improvements do not necessarily achieve the best results so homeowners would need advice on which improvements to make at each stage. Actions depend to a large extent on changes in national legislations.

Solution 6 – Comply or explain on zero emission building

New buildings are subject to a variety of regulations covering safety, aesthetics and other factors, as well as environmental standards. Tilburg could encourage developers to achieve energy standards beyond the minimum required. The city cannot introduce an absolute requirement for zero emission housing, as this would require legislation at national or European levels. An alternative would be to require developers to explain to the city why they were not meeting a zero emission standard with new homes. This would increase the pressure to improve the energy performance of new buildings.

Considerations

- This would be a voluntary measure which would require the co-operation of property developers, and would rely largely on peer group and public pressure.

Solution 7 – Showcase city buildings

Leadership is an important and powerful element in achieving city-wide progress. The city can show leadership on energy efficiency in buildings by creating showcases of public buildings. Improvements to schools, libraries and other public buildings should aim for outstanding environmental performance. The city could adopt a policy of postponing improvement work if it is not practicable for financial or other reasons to achieve the highest level of performance. It is preferable to postpone improvement rather than making a compromise investment which achieves only limited progress and could "lock in" this inefficient condition because further investment would not take place for several years

Creating showcases in this way would educate users of the buildings, city employees, builders, installers, and the general public. It would stimulate interest, and encourage others to adopt high standards for new and existing buildings.

Considerations

- Investment would be required to finance the improvements, but the funds would already be earmarked for upgrading properties, as the improvements would take place as part of routine refurbishment.

Transport

Solution 8 – An open network for goods delivery

Work is already underway in Tilburg to rationalize goods deliveries into the city center. The aim is to develop an open or "white label" network to consolidate smaller deliveries. Vehicles would go to consolidation centers around the city, instead of driving into the city center. Deliveries would then be consolidated to create efficient loads, avoiding multiple journeys down the same streets by vehicles with partial loads.

This would reduce the number of vehicle journeys into the city, and similar schemes have already proved successful in cities such as Utrecht in the Netherlands and Parma in Italy. It should be possible to cut emissions by 25%, and could cover half of all deliveries (by weight). Experience elsewhere suggests it is possible to cut the number of vehicle movements by 80%, because city centers typically have a large number of small deliveries. An intelligent traffic system will be a key enabler to provide full security and control. It is essential for the deliverers to be able to track products throughout the distribution chain.

Considerations

- The city would need to set a minimum load level, or minimum number of deliveries, in the center below which consolidation would be required. A pilot scheme would be needed to develop the system, and could be used for a geographical area of the city, or a product category. Detailed analysis of deliveries and discussions with retailers would provide the necessary data and the details of a viable system. The city would work with willing innovators to create the momentum, expecting others to join, once a clear direction was established. The city would tender this network to logistics companies with expertise and knowledge in the field, rather than running the network itself.

Stimulating action

Solution 9 – A manifesto for Tilburg

More than 100 local organizations have signed the Tilburg Climate Declaration which commits them to the city's carbon neutrality targets. Signing the Declaration requires no specific actions, however.

To stimulate progress, the signatories could adopt a Climate Manifesto requiring specific actions, in the same way as the WBCSD Energy Efficiency in Buildings Manifesto[2]. Requirements could begin with reporting annual energy and emissions, followed by measures such as introducing policies and targets, creating a Green Deal and engaging employees in climate action. Once companies begin to report energy and emissions performance, competition to do better than rivals may further stimulate action.

Considerations

- Tilburg could adapt the WBCSD Manifesto for energy efficiency in buildings, which more than 100 companies and organizations have signed so far, containing five commitments to achieve low energy buildings. The Tilburg Manifesto could be launched at a celebratory gathering of Climate Declaration companies, at which the city could also sign up.

Solution 10 – A business green guide for the city

Businesses are most likely to be motivated to act on sustainability if there is a clear business benefit. One way to provide such benefits would be to produce a business green guide, containing details of companies that meet sustainability requirements. Examples exist in Brussels and Malmö.

The guide would help citizens and other businesses find "green" suppliers, and encourage businesses to meet the criteria which provide access to this marketplace. It would incentivize a sector ("open door" businesses), for which the city currently has no specific policies. Tilburg could add to the attraction by seeking to use businesses in the green guide for its own purchases.

Considerations

- Monitoring performance against the sustainability criteria could be onerous for the city. An alternative would be to encourage a private or civil society organization to publish the Guide, or to operate it online as a Wiki. Citizens would provide comments and judgments on sustainability aspects of a business they had used, creating a "crowd-sourced" marketplace.

The way forward

The city of Tilburg is exploring in depth how each of the proposed solutions can help it to plot a path to its 2045 vision. The Dialog session demonstrated a potential process by considering the enablers that would bring ideas to fruition. The table shows an indication of potential enablers for Tilburg's climate action to be elaborated.

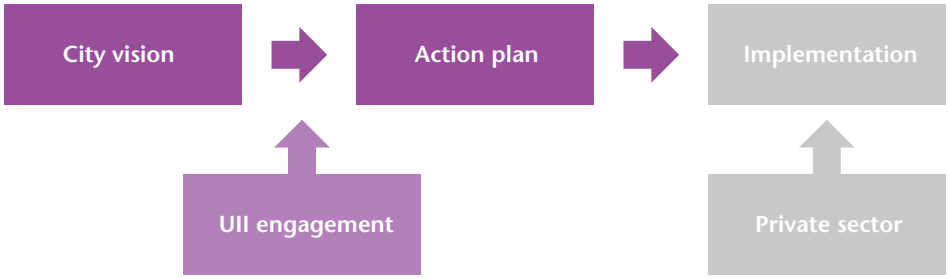
Enablers for Tilburg climate action

Regulation	Congestion charge
	Consistency and certainty
	Deregulation (demonstration zones)
Communication	Leadership and vision
	Social innovation
	Engage inhabitants
Entrepreneurship	Risk management
	Innovation
	Scalability
Education	Work placement programs
	Inspirational showcases
	Funding
	Promotion of relevant courses
Funding and financing	EU support
	Self-sustaining programs
	Total cost of ownership approach
	Link to market

2 http://www.wbcsd.org/work-program/sector-projects/buildings/eeb-manifesto.aspx

The Urban Infrastructure Initiative

The UII vision is a world where cities provide a sustainable environment for people to live, work, move and play. The aim is to work with cities to implement more effective and affordable sustainable solutions.



The initiative was launched in 2010 by the World Business Council for Sustainable Development (WBCSD) as a business contribution to urban sustainability. It brings together companies with vast knowledge, skills and experience in sectors including energy and water, mobility and logistics, building materials, engineering, equipment and support services. They have global coverage and are active in all stages of the infrastructure lifecycle. The UII member companies have proven track records in sustainability, understand the inter-connected nature of the challenges and already work with urban planners and engineers.

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About the World Business Council for Sustainable Development (WBCSD)

The World Business Council for Sustainable Development is a CEO-led organization of forward-thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its 200 member companies - who represent all business sectors, all continents and a combined revenue of more than $7 trillion - to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.

www.wbcsd.org

Disclaimer

This publication is released in the name of the WBCSD. Like other WBCSD publications, it is the result of a collaborative effort by UII senior executives and members of the secretariat. UII members reviewed drafts, thereby ensuring that the document broadly represents the perspective of the WBCSD membership.

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Co-chairs

A global building materials company that provides high-quality products and sustainable solutions to customers and communities in more than 50 countries throughout the world

Provider of highly efficient and innovative solutions to individuals, cities and businesses in the sectors of electricity, natural gas as well as energy efficiency and environmental services

Global partner for cities when it comes to the sustainable development of urban infrastructures with green, efficient products, solutions and financing models

The WBCSD is a CEO-led, global coalition of some 200 companies advocating for progress on sustainable development. It aims to be a catalyst for innovation and sustainable growth in a world where resources are increasingly limited

Members

A leader in the creation, development and management of renewable energy, sustainable infrastructure and water services, contributing actively to sustainable development

A provider of professional, technical and management support services, working to enhance and sustain the world's built, natural and social environments

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A global leader in energy management that provides solutions to make energy safe, reliable, efficient, productive and green in homes, buildings, industrial facilities, data centers and across the electrical networks

A leading company in the transfer of goods and documents around the world with a focus on time- and day-definite service

A global vehicle manufacturer contributing to the sustainable development of society through manufacturing and provision of innovative and quality products and services

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