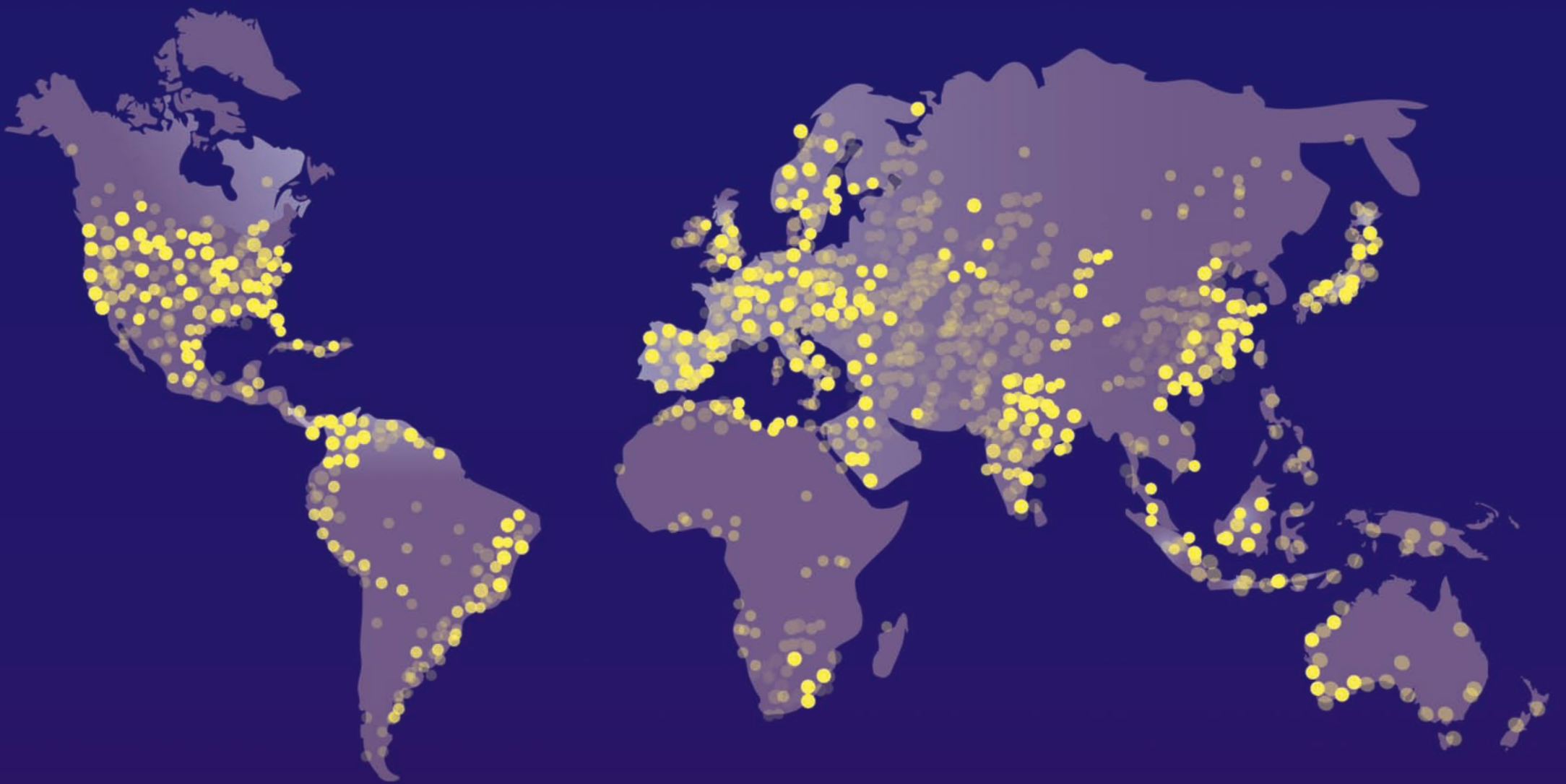




Sustainable Designs & Development



URBANISATION

The majority of the world's population is living and working in urban areas, placing huge demands on energy, resources and infrastructure. Urbanisation is widely regarded as a key driver of carbon emissions, resource depletion and environmental degradation.

WSP provides strategic design and sustainability advice to mitigate the harmful impacts of human development on the natural environment, whilst maximising design quality, economic growth, social prosperity and investment returns.

INTEGRATING SUSTAINABILITY

into every aspect of the built environment

WSP Environment & Energy is a leading international sustainability consultancy. We work to meet the highest standards of sustainable development whilst maximising investment returns. Our experience stretches from individual buildings and small developments, through to large regeneration schemes, and policy and strategy development for cities and regions.

We work with developers, architects, urban designers, masterplanners, corporations and governments. We understand their objectives and resource demands. We look carefully at the human, economic and ecological context of their projects. We bring together expertise across transport, waste, water, environmental impacts, renewable energy, carbon, and climate change and we design integrated sustainability strategies. We improve resource utilisation. We optimise land use. We manage user demand. We reduce carbon footprints. And most importantly, we integrate sustainability into every aspect of the built environment.

Creating Inspirational Environments

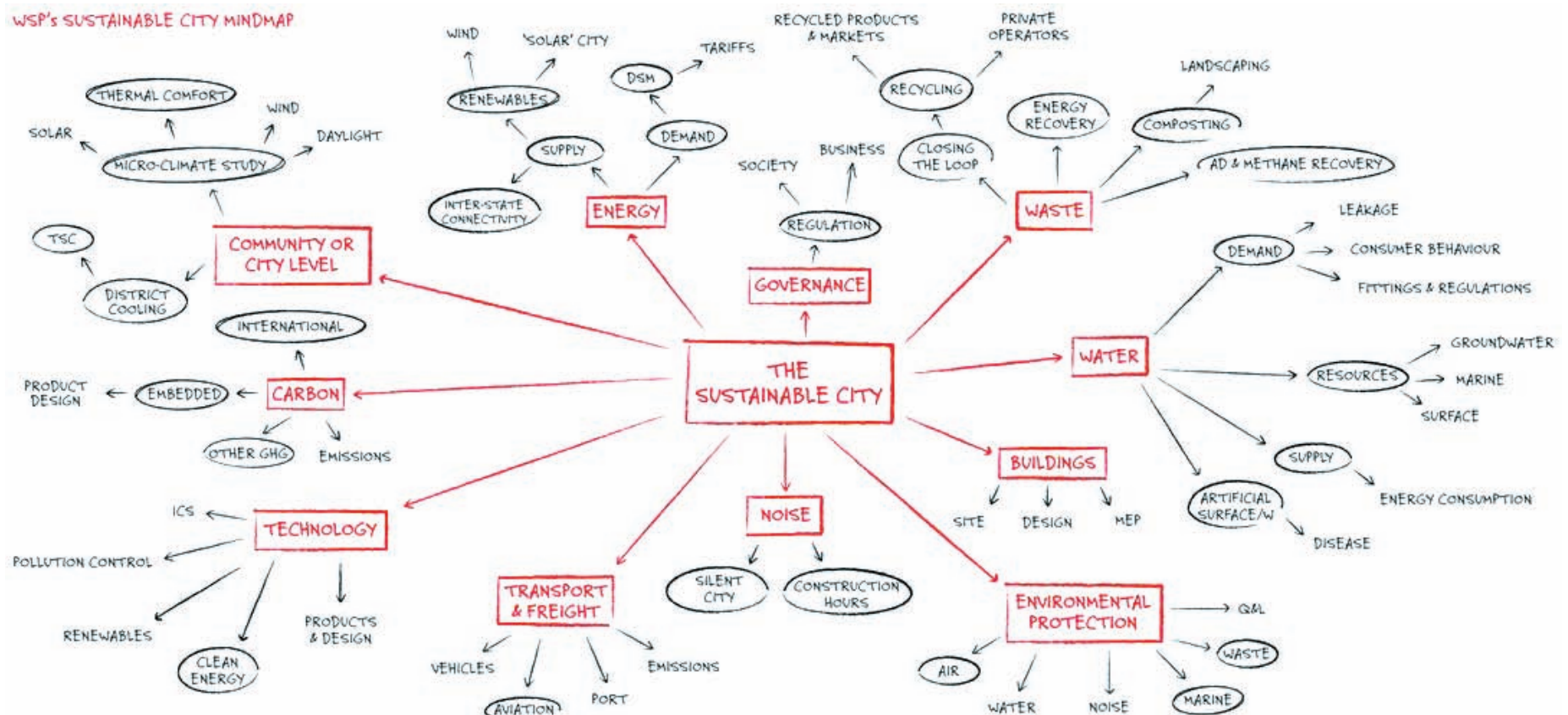
We aspire to deliver urban environments that:

- are hubs of innovation and creativity
- take only their fair share of the earth's resources
- respond well to their location and context
- are quiet, clean, effective and healthy
- keep themselves cool in a warming climate
- are good neighbours with other species on the planet
- eliminate the concept of waste
- are powered by clean energy
- provide easy mobility for users
- create a sense of place and identity
- are managed and maintained well but cost-effectively.

Delivering Profitable Progress

We bring a blend of vision and environmental empathy, allied with technical strength and commerciality. This is in addition to a track record that demonstrates that sustainability and profitability can go hand in hand. Planning for sustainability can not only be a catalyst for a better future, but also bring cost savings and new commercial opportunities. We work with our clients to set clear sustainability targets and to understand the approach, investment and infrastructure required to meet them.

WSP'S SUSTAINABLE CITY MINDMAP



SPECIALIST SUSTAINABILITY EXPERTISE

delivered with commerciality in mind

Our expertise, experience and international office network enable us to have a unique and holistic perspective on both global and local sustainability considerations. Whether an architect, planner, or designer, our clients have the flexibility to use just one or many of our service areas to match individual project requirements.

Sustainability Management & Planning

At the early conceptual stages of a project, we work with our clients to understand the vision and objectives. And we determine clear sustainability targets and outline the investment, infrastructure and criteria required to deliver it. This enables stakeholders to check feasibility, adjust plans, and have quantifiable performance requirements to feed the design and development stages. Undertaking this exercise early in the project ensures clear and realistic goals, saves time and money through more efficient upfront planning, and better protects project timeframes and delivery.

Policy & Strategy

WSP creates sustainability strategies, policies, regulatory structures, and technical standards, whether for a development, corporation, or government. We integrate our technical expertise in areas including energy, waste, water and transport with our experience in establishing advanced models for modern regulation, using performance mechanisms, voluntary tools, and self-regulation. We assess the market or organisational impact of such measures and ensure they deliver real and efficient means of implementing change.

Energy Supply

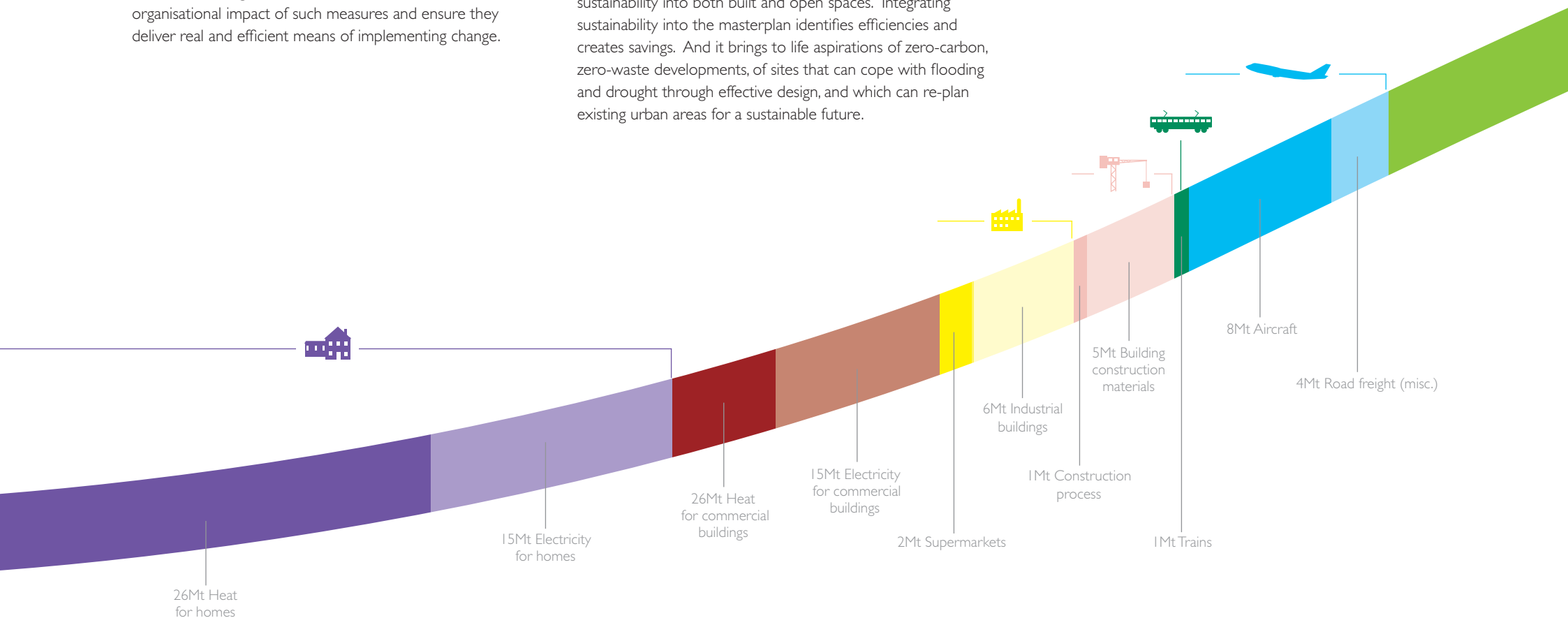
Securing a reliable, clean and cost-effective energy supply, is a key consideration in any project. WSP can estimate utility demand at regional, urban and site levels. We understand urban systems and building energy systems. We undertake technical and economic feasibility studies, including full-life costs, and present integrated technology options that maximise low-carbon and renewable technologies. We have extensive expertise across all renewables including; photovoltaic, ground source heat, wind turbines, solar collectors, co and tri generation, biomass, waste-to-energy, and geothermal.

Microclimate & Passive Design

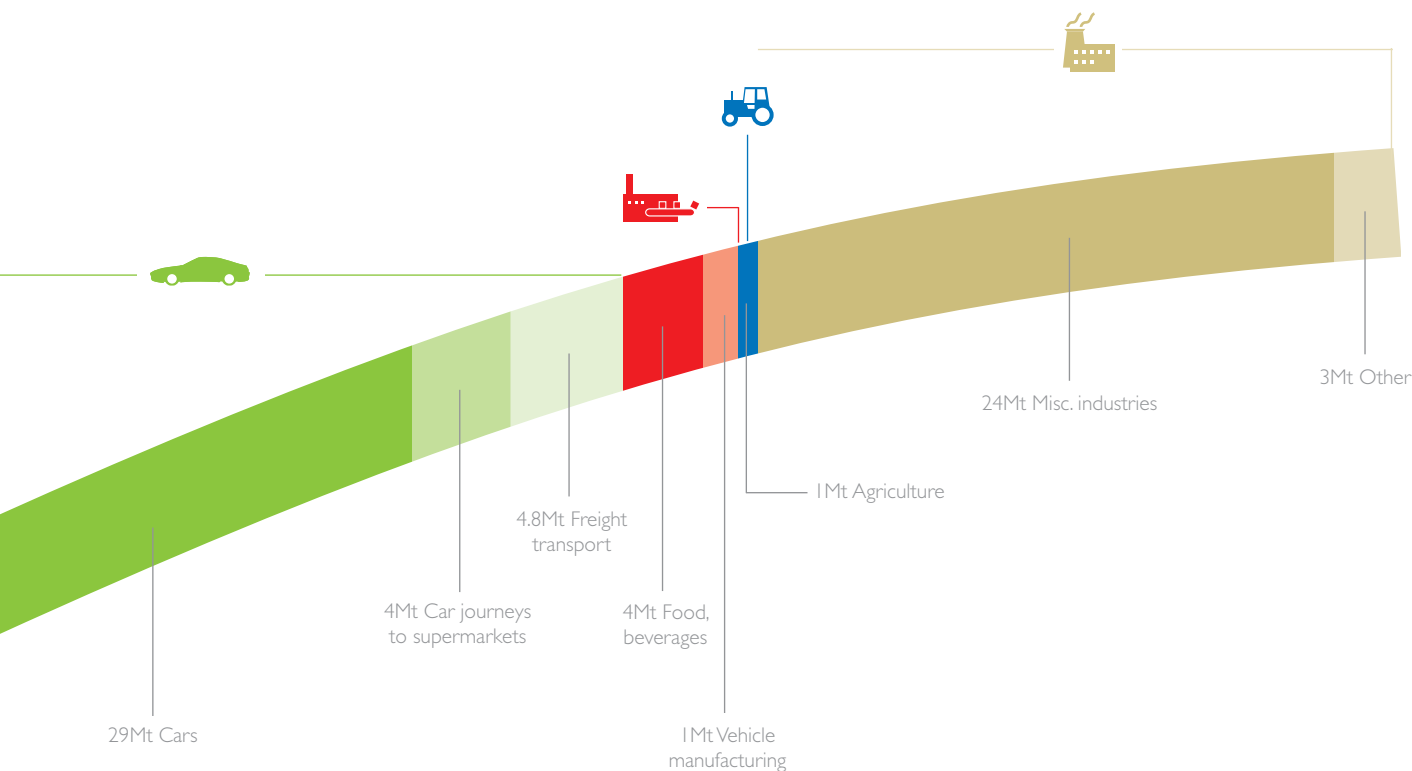
We have valuable expertise in optimising natural assets such as sunlight, shading and wind flow. This enables us to optimise the passive design of any development or building and reduce carbon intensive energy systems and costs. We optimise site zoning and massing, and assess building height, form, fabric, ventilation and orientation. We provide designs that inhibit or encourage wind flows, provide or minimise shading, and incorporate elements of the landscape to minimise energy requirements and enhance occupier comfort. We understand the climate and environments and develop sustainable passive strategies.

Masterplanning & Integrated Urban Systems

We work to understand sustainability targets, energy demands, and other infrastructure needs such as water, waste, transport and ICT and integrate those requirements into the planning framework. We future-proof strategies and integrate sustainability into both built and open spaces. Integrating sustainability into the masterplan identifies efficiencies and creates savings. And it brings to life aspirations of zero-carbon, zero-waste developments, of sites that can cope with flooding and drought through effective design, and which can re-plan existing urban areas for a sustainable future.



CARBON EMISSIONS



Sustainability Compliance & Certification

We develop sustainability strategies that meet planning and building regulations, as well as corporate sustainability objectives. We understand where to take action to achieve excellence in certification against schemes including LEED, BREEAM International and Code for Sustainable Homes, and have in-house teams of qualified assessors. And we have strengths in designing new methodologies for individual objectives such as carbon neutral developments. These are supported through specialist archaeology, noise, air and odour studies, as well as environmental and ecological impact assessments.

Carbon Management

Carbon poses both risks and opportunities for the success and financial viability of many developments and organisations. We use life cycle analysis and carbon profiling to develop carbon footprints that help clients to understand their true carbon impact and develop management programmes that address the right issues, across their site or organisation and the supply-chain. We can deliver carbon reductions through energy demand management and low-carbon energy supply, advising on alternative business strategies whilst leveraging emissions trading opportunities and ensuring compliance with relevant legislation.

SCALABILITY OF SERVICES

Our experience has seen us contribute to the success of new cities and town infrastructure, through to small neighbourhoods and individual buildings. Any of our clients can utilise any of our services, but here's some examples of how we can work across projects of varying sizes.

Small Developments & Individual Buildings

We can work closely with design teams to evaluate passive design solutions for ventilation, cooling, heating and daylighting. We can understand energy demands and assess smaller-scale on-site energy systems. And we can assist in meeting planning regulations and building codes.

Organisations

We can work with corporations to produce carbon footprints and minimisation plans. We can assess and improve the sustainability of any real estate and operational processes. We can advise on energy demand minimisation, improved renewable supply and sustainable investments.

Large Developments

We can identify and set sustainability targets. We can predict and assess energy and resource demands and infrastructure requirements. We can plan community-level energy installations and maximise passive design to eliminate carbon intensive energy distribution systems.

Cities & Regions

We can create sustainability strategies, policies and regulations. We can produce spatial plans, conduct city-level footprints and plan the development of energy, water, waste and transport infrastructure. We can plan climate change mitigation measures and adaptation strategies.

TRACK RECORD

of innovation in sustainable development

We have drawn on the technical and creative strength of our team's multidisciplinary expertise to successfully contribute to some of the world's most challenging and innovative developments.

Masdar, UAE. World's first Zero-Carbon, Zero-Waste, Car-free City.

Masdar in Abu Dhabi is planned to provide 6 million square metres of space for a population of 100,000 people. It is built on the principles of 'one planet living' and is being designed to use low-carbon technologies to achieve a zero-carbon, car-free, zero-waste, carbon neutral community. WSP was commissioned by the UK architects Foster + Partners to develop integrated infrastructure strategies into the concept masterplan. Integral aspects included waste management, the supply, treatment and drainage of water; the distribution of energy and power; and the development of systems for IT, telecommunications and cooling.

Wuxi, China. Energy, Waste & Water Strategy for City Expansion.

WSP, working in collaboration with Danish architects Schmidt/Hammer/Lassen for Sunshine 100 Real Estate Group, is providing site-wide energy, waste and water strategies for the expansion of the Jiangsu province to accommodate a further 20,000 inhabitants. We are collaborating on several aspects of the site's sustainability, particularly on minimising high energy consuming air conditioning through passive design solutions such as orientation, solar heating, natural ventilation and solar shading. Options for clean energy through building integrated renewable systems such as solar thermal and combined heat and power have also been evaluated.

Harvard University, USA. Campus-wide Sustainable Utility Delivery System.

WSP is developing a campus-wide utility delivery system based on low-carbon and renewable technologies, that provides for all thermal, electrical and cooling utilities. This is in line with Harvard's 50-year masterplan for the 200+ acre expansion of the university campus, contributing to the area's social, economic and environmental development.

Wind Power, UK. Investment Viability Assessment.

WSP has provided analysis on the small scale wind turbine industry to enable fund managers to identify viable investments. This included drivers, opportunities, constraints, policy and technology.

Graylingwell, UK. Net Zero-Carbon Homes & 15,000m² of PV Panels.

WSP is developing the 'net zero-carbon strategy' for a flagship 750 home development in West Sussex for Linden Homes, Downland Housing Association and English Partnerships. All new dwellings in the scheme will meet Code level 6 under the Energy credits of the 'UK Code for Sustainable Homes' and Code credits level 4 for all the other credits.

Microclimate and passive design analysis have been applied to minimise the need for energy in each home, including high building fabric specification to minimise heat-losses. An overshadowing study has been carried out to maximise the direct solar radiation for 15,000m² of PV solar panels spread across roofs, making it the UK's largest domestic installation for renewable energy. Another carbon saving feature includes a low-carbon combined heat and power installation that could export excess electricity to adjacent institutions, developments or back to the grid. The first phase is due for completion in 2010.

Marks & Spencer, UK. Carbon Profiling.

Marks & Spencer (M&S) is one of the UK's leading retailers. They are committed to responsible operations and have a 5-year eco plan which includes becoming carbon neutral and sending no waste to landfill by 2012. WSP is working with M&S to develop a carbon profile of their UK operations. This includes direct carbon output from new and existing stores, the operations of their stores, depots and offices, and staff travel. It also covers indirect carbon outputs from suppliers and customers, including packaging disposal, customers' use of products and plastic bags, and customers' travel to and from their stores.

Hali'imaile, Maui, USA. Sustainable Masterplan for New Hawaiian Community.

In collaboration with William McDonough and Partners, WSP is preparing the Housing Development Standards for a new community on the island of Maui. We have provided design support for a cradle-to-cradle sustainable site masterplan which includes options for natural ventilation, solar control, free mechanical cooling through solar radiation, and other renewable technologies for site-wide carbon neutral power.

City Indicators, Europe. Sustainability Benchmarking for European Cities.

WSP was commissioned by Veolia to develop a framework to benchmark all European cities based on their sustainability performance. This benchmark will identify the sustainability strengths and weaknesses of individual cities. WSP developed a number of indicators relating to GHG emissions, energy use, water consumption and waste generation.

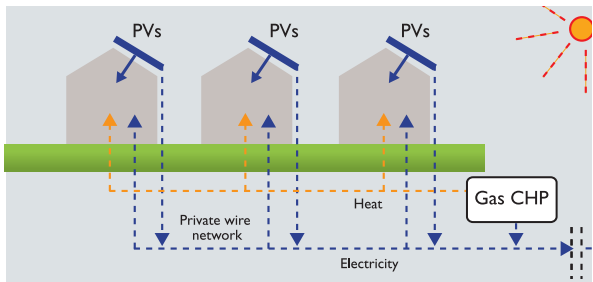
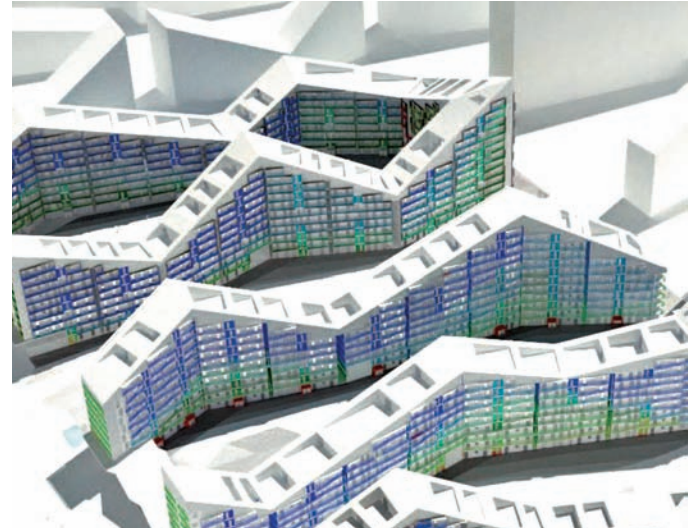
Kidbrooke Impact Analysis, UK. Environmental & Microclimate Assessments.

WSP is providing microclimate analyses for Kidbrooke, a mixed-use development scheme in London. Kidbrooke covers approximately 109 hectares of land. We are working closely with the architects' team Lifschutz Davidson Sandilands to determine the impact of the proposed scheme on the local wind environment and on the levels of daylight and sunlight to neighbouring properties and within the scheme. The studies are being used to identify mitigation measures which is an important consideration in the planning process in the UK, particularly with large projects.

Sustainable Development, Dubai. Urban Framework.

Alongside international planning consultancy Urbis, WSP has been commissioned by the Executive Council of Dubai to develop the Dubai Urban Development Framework. The project is required to successfully implement the Ruler's strategic plan issued in 2005. The new Urban Framework will provide an appropriate set of strategies, spatial plans, policies and guidelines that when combined, will present a fully integrated long term planning and management framework that supports the sustainable growth of Dubai as a world class financial, logistics and tourism centre. WSP is specifically responsible for the city's climate change response, environmental management, public and freight transport, infrastructure and sustainable urban design.

Dubai Municipality and Dubai Electricity and Water Authority have commissioned WSP to develop green building regulations for Dubai. The framework will be a world first in specifying mandatory requirements beyond energy efficiency for all new and existing buildings. This, together with the Urban Development Framework, outlines the vision and road map for the development of the Emirate.





A LEADING SUSTAINABILITY CONSULTANCY

WSP Environment & Energy is one of the world's leading sustainability consultancies. We have 1000 specialists in over 65 offices around the world.

Our multi-disciplinary approach takes advantage of a strong local presence in the major regions of the world, and combines this with the delivery of global best practice, which comes from the expertise we can draw on throughout our business.

We have technical strength, and commercial and creative thinking. We understand our clients' businesses and the issues impacting them. And accordingly we design and deliver integrated solutions to environment, energy and sustainability issues that have real impact.

Breadth of Expertise

We are proud to be part of the 10,000 strong WSP Group Plc, a leading design, engineering and management consultancy specialising in infrastructure, property, transport and sustainability. Other areas of expertise across WSP to support our clients in their plans and developments include:

- Environmental Planning
- Energy & Emissions Management
- M&E Engineering
- Fire Safety Engineering
- Land Remediation
- Geotechnical Advice
- Green Building Design
- Acoustic Design
- Road & Rail Infrastructure
- Environmental Impact Assessments
- Water Management & Flooding
- Soil & Groundwater Assessments
- Transport Planning.

Let's Talk

We have a huge number of experts you can talk to, but let's start with these three global energy specialists.



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We were delighted to win the Sustainable Consultant of the Year award.

