DECARBONISATION
CONSULTING

Achieving **sustainability**
with **data driven innovation**

dar | Sidara Company

The climate challenge is an incredible incentive for all of us to come together and design a world that is more sustainable and more nurturing - for people and for all lifeforms. As designers, planners, and engineers, we also have a critical responsibility to craft new decarbonisation pathways, tackling the world's hardest to abate sectors from energy and industry to the built environment that supports our lives and livelihoods. At Dar, we are committed to working with our clients to reimagine a greater future and deliver innovative solutions that work better for all of us, everywhere.

Balsam Nehme,
Director of Sustainability

Digital innovation for a
greener tomorrow

The built environment plays a critical role in global emissions, and existing buildings are amongst the biggest contributors. With 80% of these buildings set to remain standing in 2050, we have a unique opportunity to do the best we can to set our built environment up for success. At its core, Dar combines sustainability and engineering expertise with digital innovation to make data-driven decisions and enhance operations.

We are paving the way for sustainable practices through our innovative approach.

Tackling the biggest challenges to sustainability in the built environment

Sustainability at Dar

It's more important than ever to consider the impact our built environment has on the world around us. With 37% of energy consumption coming from the built environment, it's clear that we need to take action to reduce our carbon footprint.

We are helping our clients tackle some of the most significant barriers to sustainable action.

- Managing compliance with complex sustainability regulations, environmental reporting requirements, and carbon legislation
- Setting, pursuing, and validating progress toward sustainability and carbon neutrality goals
- Understanding data management, collection, cleaning and analysis
- Developing a robust carbon-reduction strategy
- Locating, extracting, and harmonizing environmental data
- Tracking and managing carbon emissions and sustainability metrics across multiple assets and property portfolios

Dar has the in-house expertise, capabilities, and accredited experts to deliver projects that meet the highest standards of sustainability and climate resilience, to net zero and beyond.

With our portfolio of green-certified projects, we have a proven track record of providing services in sustainable architecture and high-performance engineering design as well as sustainable master planning, interiors and infrastructure, thus spanning the whole built environment.

From advisory services to design analytics, assurance, and performance and retrofitting, our sustainability services are designed to revolutionize the built-environment while aligning a tailored sustainability solution for each project with our planet's well-being.

500⁺
LEED — certified professionals

100⁺
LEED — certified projects

45⁺
GSAS — certified projects

34⁺
ESTIDAMA — certified projects

7⁺
EHS — certified projects

" Resilience and sustainability are within reach, and together we will be successful at achieving them. "

Talal Shair,
Chairman and Chief Executive Officer

A global leader in sustainable design and environmental consultancy.

Dar is a global leader in sustainable design and environmental consultancy, combining a vision for sustainability and practical experience to deliver a solution-based approach for the built environment.

We bring years of insights and experience to make the future of industry liveable and sustainable by providing advisory services and software solutions for international sustainability challenges, supporting global targets for environmental sustainability, and pioneering high-performance design.

Our expertise spans across all sectors and markets, covering:

Advisory

We accelerate the transformation that the world needs through the development of frameworks, strategies, plans, and roadmaps towards set targets
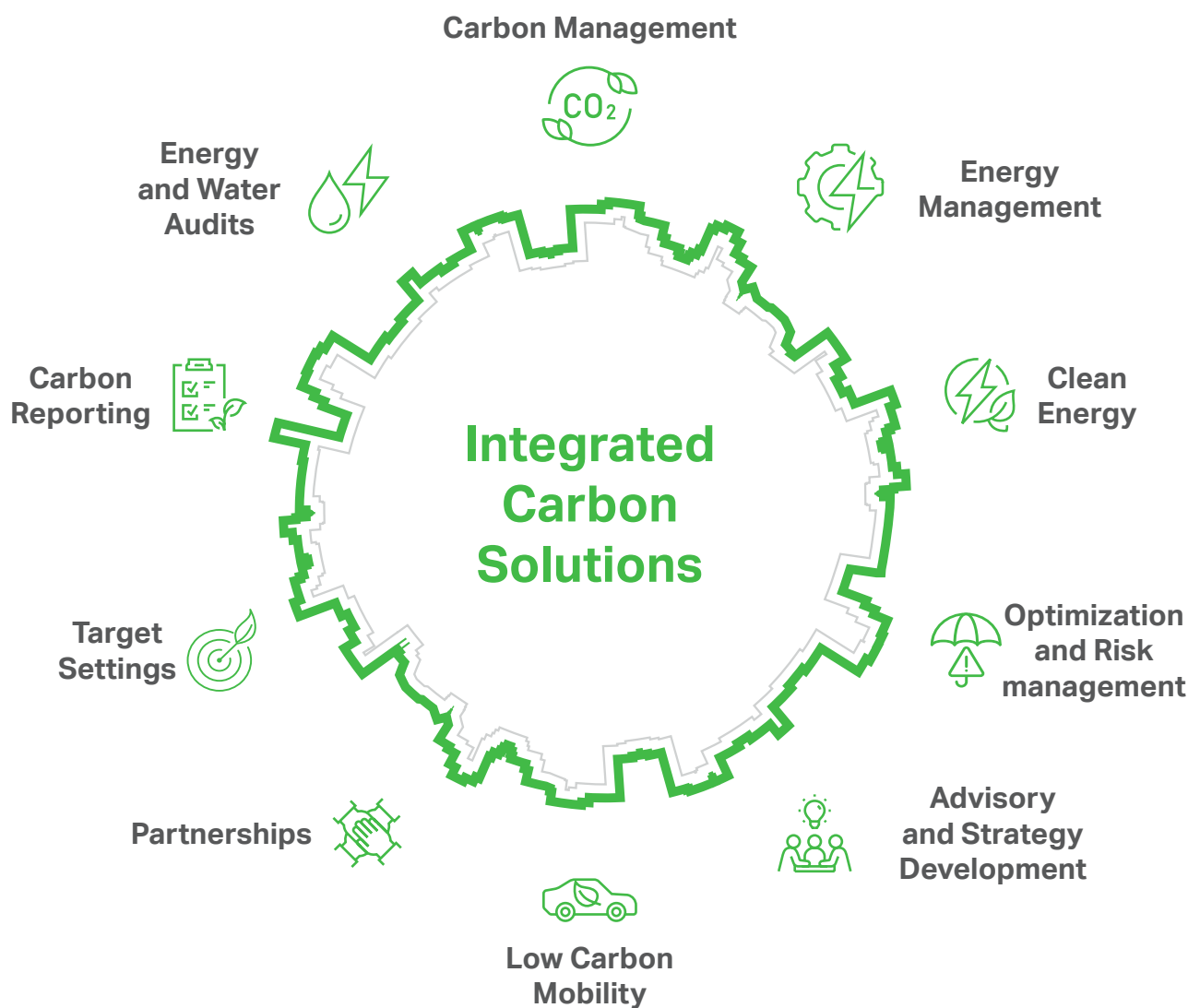
Assurance

We empower clients to meet and exceed their targets for a wide variety of sustainability certification systems and frameworks.

Design Analytics

We use state-of-the-art technologies, combined with latest research, to create impact and optimize the design of building and infrastructure assets and to prepare for the lower carbon world ahead.

Performance & Retrofitting

We assess all project components with the highest impacts and identify and optimise sustainability drivers behind the project's energy use, carbon, waste, and water footprint

Carbon Management

Energy and Water Audits

Energy Management

Carbon Reporting

Clean Energy

Integrated Carbon Solutions

Target Settings

Optimization and Risk management

Partnerships

Advisory and Strategy Development

Low Carbon Mobility

Digital at Dar

Dar brings a digital-first approach to accelerate sustainability.

Dar's Digital solutions and services are a key offering in the entire design-build-operate project lifecycle of our clients' portfolios. We help clients accelerate their digital transformation journeys by addressing their biggest challenges surrounding energy optimization, asset reliability, net zero, occupant wellbeing, portfolio visibility, and more.

We understand how to integrate and contextualize data using advanced analytics to identify operational anomalies, uncover hidden opportunities, and promote sustainable operations.

Our team of experts cover comprehensive advisory and design services from digital strategy, project planning, readiness assessments and digital sustainability, to digital design, UX/UI services, integration and more.

Our building analytics and emissions tracking platforms **Para and CopperTree Analytics work to revolutionize sustainable operation and maintenance with precision.**

Over
3,000+
active deployments

Up to # 30%
energy savings

1.3 billion
data samples analyzed per day

UL Solutions
certified

Patent pending
technology

ISO 27001
2013 Information Technology, Security, and
Information Security Management Systems

ISO 19650
Building Information Modelling (BIM)

ISO 14001:2015
Environmental Management System

Digital Twin platform to manage carbon emissions and compliance tracking

Para's digital twin portfolio management platform for built environments optimizes and facilitates operation and maintenance – empowering stakeholders to integrate and unlock the potential of vast amounts of untapped data and paving the way for exceptional cost savings and more productive, efficient, sustainable, and resilient assets.

Backed up by 67 years of experience, Para is not just a software tool but an intelligent IoT engineering platform for actionable insights, powered by predictive analytics and machine learning and built by an agile and flexible team of engineers and digital twin specialists who can tailor our services to solve the biggest problems with sustainability encountered within the built environment.

Para is pioneering sustainable operations.

Manage carbon emissions	Compliance tracking	Performance benchmarking	Emissions reporting
Track and visualize carbon emissions with a detailed breakdown, track greenhouse gas usage intensity, and categorize emissions into scope 1,2 and 3.	Measure progress towards achieving sustainability goals such as LEED O+M, Net Zero and more.	Benchmark a building's emissions against other buildings of similar size and in similar climates.	Report ESG metrics for alignment with sustainability goals and sustainable financial drivers.

Advanced building analytics to minimize faults and comply with building regulations

CopperTree Analytics is a building analytics service provider that utilizes patented data-contextualizing technology to solve prevalent issues in building energy management and data integrity. The platform, a full-stack proprietary software solution, was purpose-built and consists of an energy information system (EIS) and a fault detection and diagnostics (FDD) platform with integrated system performance auditing. Using a SaaS model paired with managed services, CopperTree provides powerful insights designed to save customers money and energy.

KAIZEN ENERGY

Energy Management Information System

Understand energy consumption by portfolio, building, or at equipment level to better identify areas for improvement. Automated rules and reports help organizations swiftly and easily comply with new regulatory obligations, and reduce the time it takes to report on them to government agencies.

KAIZEN FDD

Fault Detection & Diagnostics (FDD)

Detect and diagnose equipment and system problems, often before they lead to a complete failure, or large amounts of excessive energy consumption.

Enabling organizations to proactively address energy issues and prevent costly downtime or repairs not only reduces costs but also helps organizations to be more resilient to potential disruptions.
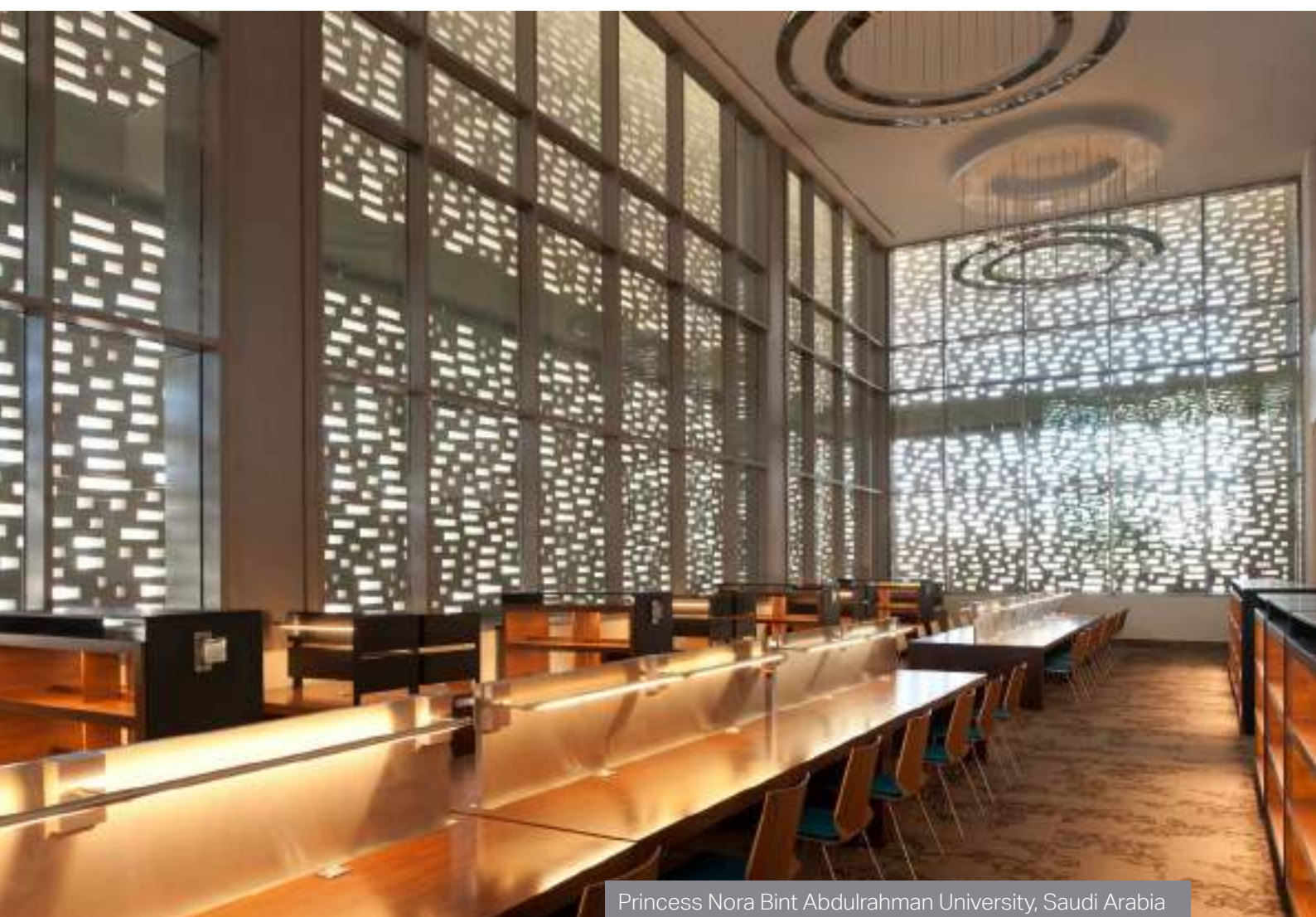
Our **impact**

Our edge lies in the seamless integration of our deep sustainability and engineering expertise with our cutting-edge digital capability.

We believe that the most effective way to achieve sustainable practices is through the integration of data and engineering.

We pride ourselves on being a unique blend of sustainability and engineering experts, who are well-versed in the digital landscape. We leverage our platform with over 3000 active deployments to access and interpret valuable data that informs decision-making and enhances operations.

Our ability to integrate with ease and interpret data using advanced analysis toolkits like AI/ML, coupled with our deep understanding of the technology and software landscape, allow us to provide exceptional value to our clients and help them achieve their sustainability and operational goals.

Princess Nora Bint Abdulrahman University, Saudi Arabia

Decarbonisation
Consulting Services

From portfolio assessment, planning, and strategy implementation, to emissions reporting and assurance, we support your entire decarbonisation journey from start to finish.
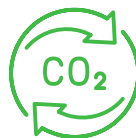
Portfolio
assessment and
planning

1
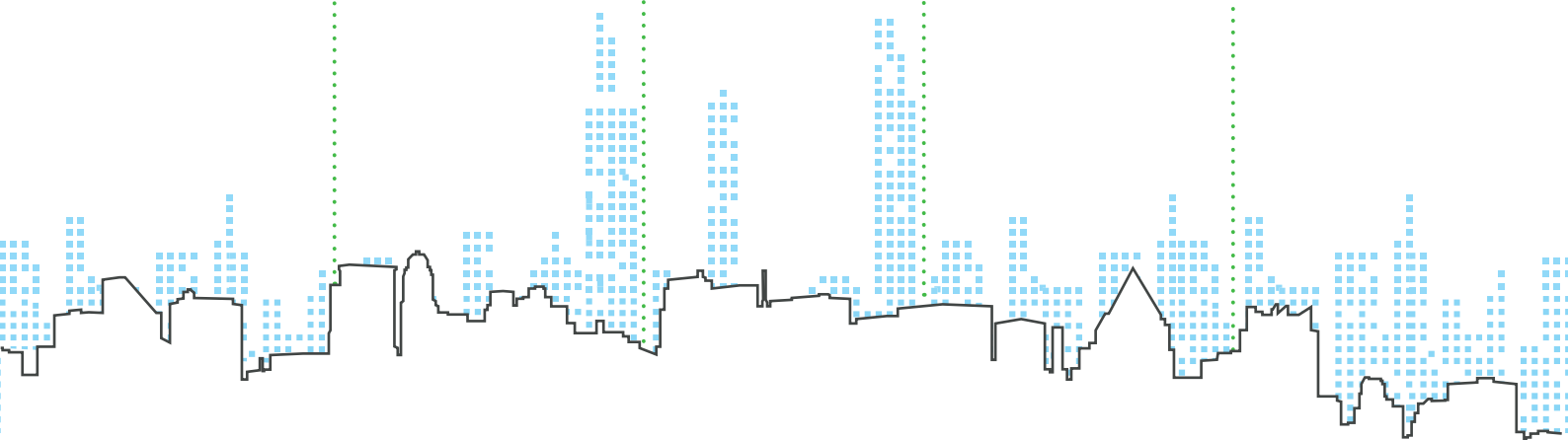
Decarbonisation
Strategy

2

Emissions
reporting

3

Assurance

4

Portfolio assessment and planning

Our team will conduct a thorough assessment of your portfolio performance and business objectives to determine the necessary steps for achieving your decarbonisation goals.

Data collection
Streamline and automate data collection of scope 1, 2, and 3 emissions using integrated data layers.

Assessment and baseline establishment
Conduct a comprehensive assessment of the building or organization's current carbon footprint across all operations and supply chains.

Energy and water audit
Conduct a comprehensive analysis of the facility's energy and water usage patterns, infrastructure, and processes to assess how efficiently your building uses resources and identify opportunities for improvement.

Digital readiness gap assessment
Identify discrepancies between current infrastructure and practices and desired standards or goals and provide actionable insights to bridge these gaps, especially when it comes to the availability of data acquired from sensors and sub-meters.

Benchmarking studies
Perform benchmarking studies to assess your building or organization's energy performance against industry's leaders and well recognized standards.

Sustainability objectives
Establish specific, measurable objectives that align with the organization's overall sustainability goals and priorities.

Timeline development
Identify a phasing strategy to monitor progress and milestone achievements. The strategy is tailored to the organisation's operations and needs and based on technical and financial feasibility. .

Central Business District, Egypt

Decarbonisation Strategy

Our environmental strategy creates a roadmap for your portfolio, assets, and operations, based on data-driven insights, to provide the best way forwards for your organization.

Energy Management
Support energy efficiency with a variety of toolsets used to determine your organization's energy usage and how you can reduce your emissions, including the below:

- Energy conservation and efficiency
  - Asset optimization
  - Asset electrification
  - AI and data analytics platforms
  - ML augmented Fault Detection & Diagnostics (FDD)
- Energy transition and supply side management
  - Load management
  - Renewable energy penetration
  - Energy storage optimization
  - Digital infrastructure implementation
  - District energy tracking and evaluation

Water management
Achieve water conservation and understand inefficiencies in the water consuming processes by reducing the overall demand and using alternative water sources and sustainable water management solutions::

- Water reuse
- Water conservation
- Rainwater harvesting
- Stormwater management
- Leak detection and repair
- Water quality management

Circular economy model
A circular business model is tailored to reflect the specific considerations of each operation's strategic intent:

- Waste reduction and material recovery
- Recycling
- Asset lifespan extension
- Data-driven condition-based predictive maintenance

Capital upgrades

- Advise on the significant improvements to your building or infrastructure.
- Quantify the impact of these improvements using energy simulations.

O&M regime optimization
Establish automatically calculated KPIs and EnPI's to improve indoor air quality, green cleaning, and facility management.

3 Emissions reporting

We help your organization monitor its environmental impact, track progress, and identify areas for improvement in your sustainability efforts. Our goal is for your organization to navigate the complexities of your emissions and leverage them to understand the actions needed for success.

Data collection
Collect data using our energy management platform to understand and contextualize your asset's data, leveraging automatically acquired data as well as user data input.

Transparency
Translate the decarbonisation plan into a report that includes all metrics and reflect the company's operations and goals. This includes environmental dynamic reporting through Para as well as transparency and continuous reporting.

Digitization
Digitize the process by moving away from discrete audits into continuous real-time audits with autonomous verification using sustainability tracking and compliance management tools.

Carbon reporting
Identify applicable carbon reporting standards and protocols.

Recommendations
Provide recommendations for improvements based on captured data trends.

Al Maktoum International Airport, UAE

Fairmont Hotel and Raffles Hotel, Qatar

4 Assurance

Our team is familiar with a wide range of recognised national and international sustainability and energy standards, and we consistently pursue any new emerging standards, to ensure that our clients can be kept up to date on the industry's latest practices.

Net zero journey
Tailor sustainability key performance indices, validated via analytics to support a clear pathway towards meeting requirements and goals for net zero if not net positive for buildings, infrastructure and cities.
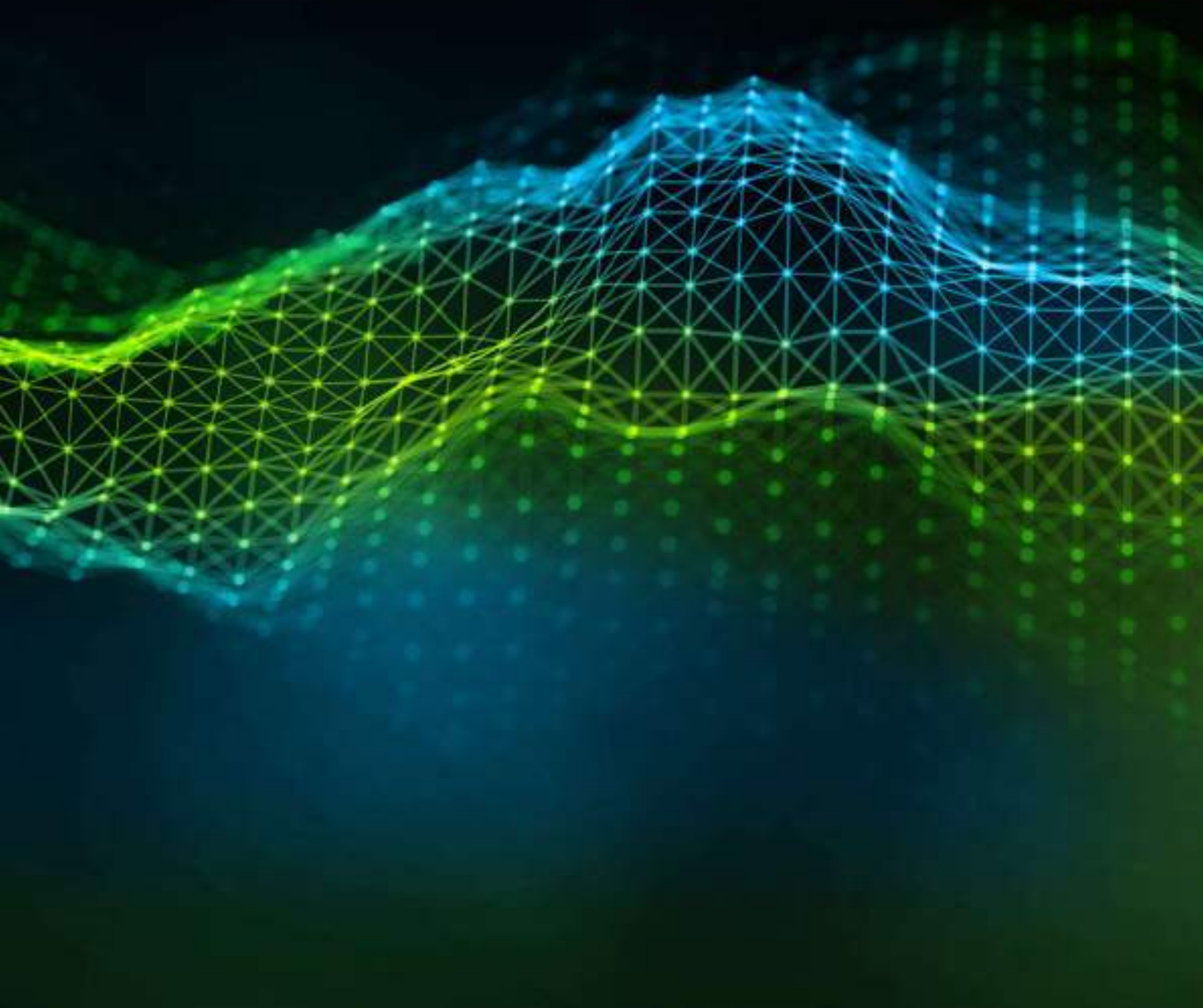
Public commitments declaration
Offering expertise to help clients own their public commitments to sustainability and net zero.

Green ratings compliance for sustainable operation (LEED, BREEAM, WELL, Envision)
Our assessments support sustainable design choices, inform policy development, and contribute to green building certifications and sustainability rating systems.
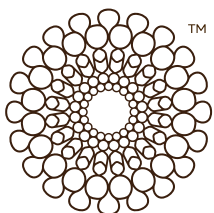
Project **references**

Discover how we're helping
clients decarbonise.

KSA Window to the World Pavilion

EXPO
2020
DUBAI
UAE

Ensuring LEED Platinum status in iconic pavilion

Inspired by the theme "the sky is the limit," the iconic pavilion features a unique inclined prism design that draws on the Kingdom's welcoming character and its rich history, with a nod to the Expo 2020 theme of "Connecting Minds, Creating the Future." Dar was tasked with preparing the detailed design of this landmark project, ensuring that the building achieved LEED Platinum sustainability criteria, and providing ongoing assistance during the construction phase.

Certified LEED Platinum, the Pavilion ranks among the most sustainable structures in the world.

Hamad International Airport

Doha, Qatar

Providing seamless passenger experience with decarbonisation consulting.

Dar's building operations platform Para is to be implemented at the Hamad International Airport to enhance overall passenger experience, achieve LEED Gold certification, and improve operation and maintenance.

The platform's sustainability module aims to manage carbon emission tracking, performance benchmarking, compliance tracking, emissions reports, and real-time monitoring of environmental parameters. Additionally, the module allows for a comparison of different subzones within the terminal building from a sustainability perspective.

Hikma Pharmaceuticals

Aman, Jordan

Decarbonisation roadmap for pharmaceutical operations and supply chains.

Dar conducted a comprehensive assessment of Hikma Pharmaceutical's carbon footprint across all operations and supply chains. The goal was to reduce scope 1 and 2 GHG emissions by 25% by 2030, using a 2020 baseline. To achieve this target, Dar implemented a net-zero strategy by tracking energy usage, identifying detailed energy insights, quantifying performance gaps and implementing tailored energy optimization. Additionally, Dar incorporated water management targets as part of the long-term incentive plan, with the aim of setting water management targets for all MENA sites by the end of 2025.

American University of Beirut

Beirut, Lebanon

Enabling Holistic Campus Monitoring and Sustainability at American University of Beirut.

Para deployed its portfolio management module at AUB in Beirut to address the challenge of lack of comprehensive view on the average number of reservable classrooms and labs. The module provided a holistic monitoring of the overall campus energy and water consumption, space availability, and asset performance. It also enabled tracking and visualizing carbon emissions with a breakdown by source. The deployment helped pinpoint underperforming buildings and provided a live and historical view of campus operation in terms of energy, water, assets, sustainability, space utilization, and occupant wellbeing. Additionally, the module allowed for a comparison of the performance of each building against sustainability benchmarks.

Jeddah Central District

Jeddah, KSA

Digital Twin sustainability strategy for JCD smart village.

The Jeddah Central District project is set to be a Prominent Development Project in the Kingdom's Vision 2030. It consists of 6 cohesive districts with one identity, encompassing 17,000 residential units, diversified hotel projects offering more than 2,700 hotel rooms, and providing integrated solutions for the business sector. The JCD Master Plan spans a net developable land area of approximately 5.7 million m². The Digital Solutions team has set up a Digital Twin Strategy that aligns with JCD's smart city strategy and initiatives. In addition, the team had success targeting LEED Cities and Communities at Gold Level.

Doha Tower

Doha, Qatar

Carbon emission benchmarking for Doha High Rise.

The project at Doha Towers involves the development of Para's platform, which will integrate data and configure and deploy Para's Digital Twin platform for the entire Doha Tower. This will include various use cases and modules, such as Energy Intelligence, which is an energy information system, as well as asset performance, and fault detection and diagnostics. It will provide insightful alarm analytics, smart alarm ranking, and filtration. Furthermore, the Sustainability module will be responsible for managing carbon emissions and performance benchmarking. Lastly, the Occupant Wellbeing module will monitor the environmental comfort and offer environmental target-driven alarming.

About **Dar**

Over 65 years of expertise in the AEC world

Dar is one of the world's leading consultancies, providing design, planning, engineering, and project management services for buildings, cities, transportation, civil, infrastructure, water and the environment.

We are a global community of talented and innovative engineers, planners, economists, architects, sustainability specialists, digital experts, designers, project management specialists, construction management professionals, and multidisciplinary experts. Together, we take on the world's most exciting and ambitious projects in order to nurture sustainable development, empower and connect communities, create more and better opportunities, and enhance lives.

9,000+
Experts

950
Clients served

54
Offices

60
Countries

4,000+
Projects completed

Dar's **sustainability** and **digital initiatives**

Advancing World GBC's **Net Zero Carbon Buildings**

Signatory to the **UN Sustainable Development Goals**

Committed to reporting **on our ESG Practices**

UL Smart Building Systems certification

Signatory to the **UAE Net Zero Pledge**

Compliance with ISO

Strong voice and participation at **Climate Action – COP28**

About **Sidara**

ᵞ Sidara

Sidara, formerly Dar Group, is an international consortium of professional service firms. Assisting clients in over 100 countries around the world, the Sidara Collaborative is dedicated to planning, designing, engineering, and project managing facilities, installations and structures. Sidara is helping to decarbonise the most challenging sectors in the built environment.

As a Sidara Company, Dar is a part of the effort to elevate sustainability and uplift communities worldwide.

20,000+
Employees

60+
Countries

21
Companies

300+
Offices

Sidara

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dar
Buildings &
Infrastructure

Perkins&Will
Architecture &
Design

Currie & Brown
Project
Management

PENSPEN
Energy
Infrastructure

TYLin
Global
Infrastructure
(Engineering,
Advisory & Systems)

Specialty Brands

ENR **Rankings**

#10 global international design firm

THE TOP 10 INTERNATIONAL DESIGN FIRMS BY REGION

#3 Middle East

#3 Africa

#6 United States

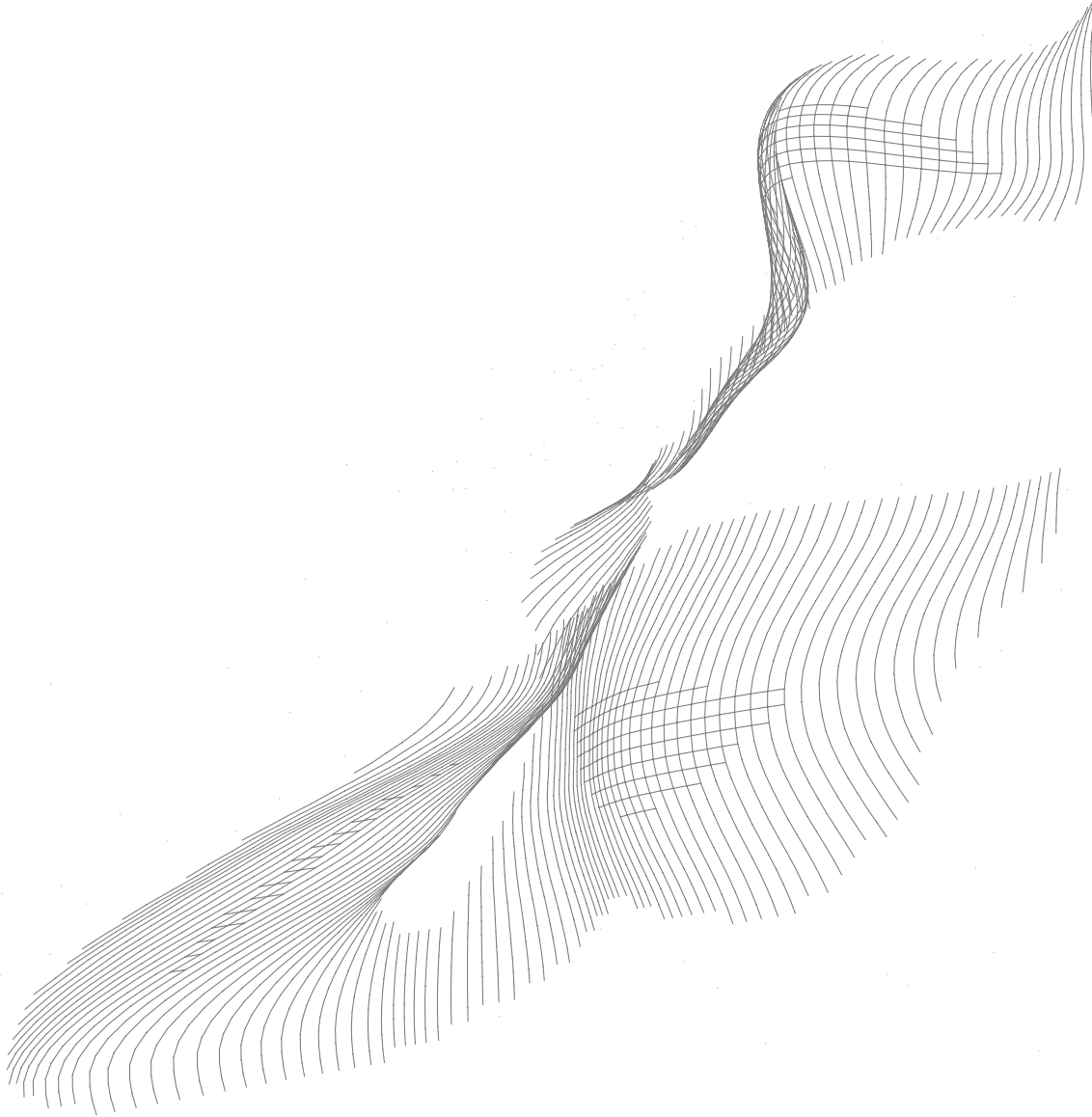### THE TOP 10 INTERNATIONAL DESIGN FIRMS BY MARKET

#1 Airports

#1 Healthcare

#1 Education

#2 General Buildings

#2 Commercial

dar.com