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Infrastructure

Structuring, Development & Funding

TREDIC Corporation

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The reality about infrastructure is that it's future-oriented. If we're planning for what we have, we're behind the curve.

Anthony Renard Foxx



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1.0 TREDIC Introduction

TREDIC

Welcome to **TREDIC Corporation.**

Owned by the Harris Family and headquartered in London, TREDIC Corporation has special purpose vehicle (SPV) commercial Development, Investment & Advisory interests



spanning infrastructure, real estate, energy, trading, natural resources, commodities and agriculture.

With a focus on both core and non-core asset classes, TREDIC structure, finance, develop and advise on projects globally; and are a trusted partner to Governments around the world as well as both public and private sector financial institutions.

As master developers and administrators we draw together globally sourced technical & financial expertise to set the most innovative and dynamic industry execution standards in socio-economic development, transportation, power, energy, digital communications, supply chain & logistics, defence, healthcare, water, sanitation & irrigation, agriculture, education and natural resources.

Typically TREDIC start by reviewing an infrastructure opportunity and undertaking preliminary due diligence prior to holding a conference call with the promoter, sponsor or project owner. Once a professional relationship and shared mind-set is established, TREDIC typically engage the project owner in a pre-consultation and where necessary undertake a site visit. TREDIC will establish the budget for preliminary project works and a commercial relationship will be formed. TREDIC are able to secure major project finance for both core and non-core infrastructure (and possibly associated real estate) subject to budgetary commitment towards advance stage projecting in and mitigation of both funding and development risk. We therefore typically only work with early stage project owners whom have the required seed financing projecting budgets for provision of TREDIC's services and the mobilisation of the required project infrastructure IP. This may include for commissioning of feasibility studies, environmental impact assessment, the provision of a project brief and design strategy, the provision of a project roadmap and execution plan, the provision of costing studies and the provision of lobbying for the support of the key stakeholder groups.

Garnering local political support and the confidence of permitting security is also an essential ingredient of the TREDIC management strategy. With this in place, TREDIC structure the investment for the relevant capital markets that will have already been canvassed during the projecting phase and specifically to those organisation that will have already submitted letters of interest and/or intent to fund the project either at the permitting stage, or immediately post permitting.

We welcome all stakeholder groups to TREDIC Corporation and look forward to mutual cooperation.







2.0 What is Infrastructure?



What is Infrastructure?

Infrastructure is the basic physical systems of a business or nation; transportation, communication, sewage, water and electric systems are all examples of infrastructure. These systems tend to be high-cost investments; however, they are vital to a country's economic development and prosperity. Projects related to infrastructure improvements may be funded publicly, privately or through public-private partnerships.



3.0 Why is Infrastructure important?

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Why is Infrastructure important?

The need for infrastructure development is one of the great global challenges of our time.

In fact there is probably no bigger question for public policy worldwide. Not only do the new big economies like China and India need more and better infrastructure, we are at a point where a lot of the ageing infrastructure in more sophisticated infrastructure environments such as Europe and the US needs replacing.

Globally, we need better roads and railways, nuclear power plants and wind farms to meet our sustainable energy needs, schools and hospitals.

Failure to invest means failure to grow and develop our social and economic fabric – as the human race, we all have a stake in this.

Experts estimate that about \$40tn (£25tn) is needed globally to build or upgrade roads, railways, power plants and other infrastructure in order to keep up with demand.

TREDIC Corporation is sitting front and centre of this global need, ready and waiting to partner with Governments, the public and private sectors and global financial institutions and funds, structure, finance, turn-key develop and asset manage world class infrastructure.



4.0 TREDIC's infrastructure sectors

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TREDIC's infrastructure sectors



TREDIC has expertise in the following infrastructure sectors:



Transportation Infrastructure

- Roads and bridges
- Ports
- Inland Waterways
- Airport
- Railway Track, tunnels, viaducts, bridges
- Urban Public Transport
- Supply chain and logistics
- Distribution & warehousing



Power & Energy Infrastructure

- Electricity Generation
- Electricity Transmission
- Electricity Distribution
- Oil pipelines
- Oil/Gas/Liquefied Natural Gas (LNG) storage facility
- Gas pipelines
- Nuclear Power
- Renewables



Water & Sanitation Infrastructure

- Solid Waste Management
- Water supply pipelines
- Water treatment plants
- Sewage collection, treatment and disposal system
- Irrigation (dams, channels, embankments)
- Storm Water Drainage System



Communications Infrastructure

- Telecommunication (fixed network)
- Telecommunication towers
- High speed internet distribution networks
- Data-centres
- Digital broadcasting (cable)
- Satellite



Social and Commercial Infrastructure

- Worker accommodation & affordable housing
- Education Institutions (capital stock)
- Hospitals & Healthcare (capital stock)
- Three-star or higher category classified hotels located outside cities with populations >1 million
- Common infrastructure for industrial parks, SEZ, tourism facilities and agriculture markets
- Storage infrastructure for agriculture and horticultural produce including cold storage
- Terminal markets







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5.0 Infrastructure development -----

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The five core stages of the infrastructure development process that TREDIC manage on behalf of clients and partners are:



STAGE ONE Project assembly & feasibility

The professional activities that are required to fully evaluate the infrastructure development concept, its commercial viability and the development options. This is fundamental to allow the principal investor to determine with informed decision making authority whether an infrastructure project is feasible and should proceed with further investment.



STAGE TWO Pre infrastructure development

The professional activities that are required to manage an infrastructure development from the decision to develop, through to the financing strategy, recruitment and management of the professional infrastructure development team, design creation, securing of relevant permits and onto the start of the construction process.



STAGE THREE Development & Construction & Build

The professional activities that lead from the securing of building permits through to the procurement, construction tender & actual construction and practical completion of the infrastructure asset(s).



STAGE FOUR Post infrastructure development

The professional activities that are required to manage the completed infrastructure development asset following practical completion



STAGE FIVE Exit Strategy & Investment Sale

The professional activities that are required to create and manage the most appropriate exit strategy and then the implementation and commissioning of the investment sale process.



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Infrastructure: Project feasibility & deal assembly:

Project feasibility and deal assembly involves the management of the professional activities that TREDIC undertake to fully evaluate the commercial options available to both our public and private sector clients. This is fundamental to allow the client to determine with informed decision making authority whether the project is feasible and should go ahead or not.

TREDIC's infrastructure development services at this stage of the development process might include:

- 1. Advising on seed capital & early project funding requirements
- 2. Land sourcing, negotiation & acquisition
- 3. Land valuation
- 4. Residual development appraisals
- 5. Feasibility studies
- 6. Highest & best use analysis
- 7. Creation of the project brief & design strategy
- 8. Market research
- 9. Operator and / or industry partner search
- 10. Project strategy & business planning

TREDIC's infrastructure investment advisory services at this stage of the development process includes for financing & funding execution strategy, including:

- 1. Business planning & creation of the investment memorandums
- 2. Preparation of the financial feasibility study
- 3. Investor relations and placement strategy
- 4. Residual appraisal analysis
- 5. Undertake land valuations
- 6. Negotiate land of option agreements
- 7. Provide comprehensive financial marketing & public relations strategy



Infrastructure: Pre-development management:

'Pre development' involves the management of the professional activities that TREDIC will execute to manage an infrastructure project from the decision to develop the asset through to the start of the construction process.

TREDIC's infrastructure development services at this stage of the development process might include:

- 1. Identify, interview, negotiate with and appointing the professional development team
- 2. Identify, interview, negotiate with industry partners
- 3. Undertake detailed due diligence: Financial, technical, legal & environmental
- 4. Managing the design process
- 5. Occupier & operator canvassing and selection
- 6. Cost Management
- 7. Programme management
- 8. Detailed financial planning & the creation of investment & placement memorandums
- 9. Raising development finance (debt, equity, mezzanine)
- 10. Managing the schematic & detailed design process
- 11. Satisfying the local regulatory planning framework & securing the necessary zoning & permits
- 12. Successful execution of option agreements and land acquisition

TREDIC's infrastructure investment advisory services at this stage of the development process might include:

- 1. Private placement strategy
- 2. Financial due diligence
- 3. Formal valuations
- 4. Preparation of investment memorandum's
- 5. Identify & short-list prospective financing partners
- 6. Market the development project for senior debt, mezzanine or equity finance; or:
- 7. Market the development project for joint venture, sponsor or export credit
- 8. Identify & approach joint venture partners according to client preference
- 9. Work with banks to satisfy lending criteria
- 10. Restructure or rescue deals where necessary
- 11. Execute funding
- 12. Provide comprehensive marketing & public relations strategy



TREDIC's capital markets & asset management capabilities & track record include:

Financial markets:

- Debt financing
- Equity financing
- Mezzanine financing
- Joint venture equity
- Bridge loans
- Construction financing
- Contractor financing
- Debt restructuring & refinancing
- Loan sale advisory
- Debt recovery
- Strategic financing introductions

Asset management:

- Due diligence
- Asset optimisation
- Financial planning & analysis
- Market analysis
- Legal & taxation advisory
- Domestic & off-shore SPV advisory
- Portfolio management
- Exit strategy
- Operator search & selection
- Value recovery
- Acquisition & disposition

TREDIC uses a mixture of funding sources, equity & debt backers and government ECA funding. Our financial network spans UK & Western Europe, Russia & CIS, Turkey & Eastern Europe, Middle East & Africa, Asia & the Americas and our reputation and track record mean that a TREDIC project or a TREDIC sponsored project is given immediate & serious consideration.

TREDIC's principal sources of finance & our principal clients come from:

- 1. Government to Government
- 2. State Backed Government entities
- 3. Export Credit Agencies (ECA)
- 4. Investment banks
- 5. Retail and commercial banks
- 6. Infrastructure private equity
- 7. Hedge funds
- 8. Investment trusts
- 9. Pension funds
- 10. Sector specific infrastructure funds e.g. power and energy funds
- 11. Institutional infrastructure finance
- 12. Sovereign wealth funds
- 13. Private & multifamily office
- 14. High & ultra-high net worth individuals
- 15. Private investment consortium, syndicates an private debt capital markets

We also work with a number of specialist finance agencies who tap into highly country specific financing outlets and/or specialise in alternative asset financing and collateral based financing mechanisms on the global financial markets.



Infrastructure: Development, construction & build

Development, construction & build advisory focusses on the professional activities that lead from TREDIC securing the infrastructure development permits through to the procurement, construction tender & actual construction and practical completion of the development. The time between securing building permits and managing the procurement & construction tender phase through to the actual construction and practical completion of the asset is the most important stage in the development & investment process.

TREDIC's development advisory services at this stage of the development process might include:

- 1. Preparation of bill of quantities
- 2. Managing the tendering process
- 3. Managing the procurement process
- 4. Project management
- 5. Construction management
- 6. Budget management
- 7. Management of cost variations
- 8. Insurance advisory

TREDIC's investment advisory services at this stage of the development process might include:

- Client representation
- Financial reporting
- Cost management
- Management of the draw-down schedule
- Managing investor stakeholder relationships including:
- Banking & lending relationships
- Equity partner relationships
- Joint Venture relationships
- PPP relationship management







Post development advisory (asset management & operations):

These are the professional activities that are required to hold and manage the completed infrastructure development following practical completion; from operations, asset and facilities management through to its eventual Government transfer or investment sale and market exit.

TREDIC's development advisory services at this stage of the development process might include:

- 1. Operator management
- 2. Asset management
- 3. Facilities management
- 4. Leasing management
- 5. Budget monitoring & financial management

TREDIC's investment advisory services at this stage of the development process might include:

- Debt restructuring
- Refinancing
- Leasing strategy
- Loan sale advisory
- Exit strategy preparation
- Investment sale preparation
- Management of Government relations and key stakeholder groups





Exit strategy advisory:

TREDIC work with our partners and clients to determine the most applicable exit strategy, facilitate the due diligence process, manage the investment sale process, and conclude the sale.

TREDIC's investment advisory services at this stage of the development process might include:

- 1. Evaluating the exit options
- 2. Determining the most suitable exit strategy
- 3. Interpreting this into a sales and marketing strategy
- 4. Managing the investment sale process
- 5. Managing the requisite due diligence
- 6. Managing the conclusion of the sale







PPP–PFI (Public Private Partnerships & Private Finance Initiatives)

PPP / PFI is a form of procurement where the public sector procures services over a prescribed concession period (frequently 20 years or more) in a manner which leaves the risk of ownership and efficient operation of the project facilities with a private sector supplier. It is a modern form of public sector procurement designed to achieve improved value for money through a focus on whole life costing and increased risk transfer to the private sector. PPP / PFI is not the same as privatisation as the public sector retains ultimate responsibility to the public for the service concerned. PPP / PFI has become a well-established concept and is adopted in many territories around the world.

TREDIC mobilises and manages all sectors of PPP /PFI activity from consultancy services to Authority parties and Lenders, to the design and delivery of insurance programmes for the private sector participants. This includes for all sectors of PPP / PFI business including - Health , Defence, Education, Police & Custodial, Transport & Infrastructure, Waste, Water and Utilities, Airports & Aerospace, Training and output based services.

TREDIC draws on a wide spectrum of industry expertise, acting for service providers, lenders, governmental and public bodies and we undertake risk assessment, allocation and insurability studies as well as:

- Insurance due diligence consultancy on behalf of project finance lenders, bond underwriters and third party equity investors.
- Insurance consultancy, bid evaluation and support in insurance negotiations on behalf of governmental and public sector bodies.
- Design, placement and administration of insurance programmes (construction and operational). Contract review and insurance contractual requirements compliance.
- TREDIC's expertise and international network enables us to carry out assignments in the majority of territories throughout the world. We are one of the leading service providers in this specialist field.

6.0 The future of infrastructure



The future of infrastructure

Historically, infrastructure has been built in response to a specific problem, for example, tackling localised issues such as sanitation, flooding or fire or the need to travel from A to B. In most cases, little thought has been given to future conditions or needs, a situation which has been exacerbated by short-term political cycles. This has meant that infrastructure has quickly reached capacity and become unfit for purpose.



Future infrastructure will need to be better planned and coordinated and will need to rely on improved modelling of future demand and long-term weather and environmental changes. Society will come more and more to demand intelligent infrastructure which makes the most of energy generation and distribution, makes buildings smarter and keeps traffic flowing. We believe that this is likely to improve with increased usage of smart systems using feedback data loops which provide evidence for informed decision-making and better data on which to base projections.

The worlds of technology and infrastructure are merging at a faster rate than any point in our history and the next decade will see more technological advancement and integration than in the hundred years beforehand. Capital projects & infrastructure will no longer be seen as predictable, engineering-driven and labour-intensive but rather at the cutting-edge of technology. A wide array of disruptive, breakthrough technologies are rapidly transforming the way infrastructure is built and operated, reshaping the way the infrastructure industry operates, and bringing major implications for every participant in the value chain.

TREDIC and our key industry partners are heavily funded and are at the forefront of global research and development into these new technologies and we bring this technical expertise to our partners and clients in both core and non-core infrastructure. We have come to the conclusion that there are some unique principles and technologies common to all sectors that need to be actively embraced and applied to all future infrastructure planning:

These are:

- Interoperability the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged.
- The "Internet of things" The IoT is a fast-expanding network ٠ of digitally-connected objects - devices, vehicles and more embedded with sensors and intelligent computing capabilities, while the Industrial IoT (IIoT) is a subset used in the manufacturing and industrial sectors. Closelv linked with the rise of smart cities and grids, both the IoT and IIoT open the way to a future where a vast array of sensor data and analytics-driven intelligence is available seamlessly in real time, creating many impacts for the infrastructure sector. These range from the rapid build-out of high-speed national communications infrastructure systems to underpin the IoT, to the need for buildings and transport hubs to be designed from groundup to exploit IoT connectivity, intelligence and insight. The IoT also presents major opportunities during infrastructure construction, including remote real-time monitoring and control of equipment through embedded sensors, faster and smarter business intelligence for decision-making, real-time tracking of the location and safety of employees and contractors, and delivering context-specific information to workers on-site through augmented reality.
- Use of drones the growing use of drone technology across the world in activities such as supervising ongoing capital investment programmes, monitoring the progress of projects, managing maintenance of existing infrastructure (often combined with 3D printing), handling tasks in hazardous areas and conducting asset inventories.



- **Climate resilience** the capacity for a socio-ecological system to: (1) absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and (2) adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.
- 3D Printing is now used by the majority of industrial manufacturers in developed markets and its application in infrastructure is increasing apace, with uses ranging from the construction of 3D-printed buildings i to the printing of replacement parts onsite to maintain power infrastructure more quickly and efficiently.
 3D printing could potentially save significant costs in bringing construction projects to market through shorter project times and fewer wasted resources and the technology also promises dramatic reductions in shipping costs, bringing big implications for ports and transportation infrastructure. With reduced waste during construction and the ability to melt down and recycle infrastructure, 3D-printing is ultimately set to transform how cities worldwide are planned, built and sustained.
- **Digitisation** The conversion of data into digital form that can be processed by a computer. Digitization is of crucial importance to data processing, storage and transmission, because it "allows information of all kinds in all formats to be carried with the same efficiency and also intermingled". Unlike analog data, which typically suffers some loss of quality each time it is copied or transmitted, digital data can, in theory, be propagated indefinitely with absolutely no degradation. This is why it is a favored way of preserving information for infrastructure projects around the world.

- Smart tech Smart technologies that combine digital connectivity with intelligent processing are already starting to revolutionise the way societies across the world design, create and use infrastructure. Smart cities and grids are taking a pivotal role in a vast array of infrastructurerelated activities, ranging from managing carbon impacts to controlling devices and facilities in homes and business premises.
- Smart-maintenance Used to reduce replacement costs, delays and provide environmentally friendly maintenance solutions for ageing infrastructure networks. This will be achieved through the development of state of the art methods to analyse and monitor the existing infrastructure and make realistic scientific assessments of safety. These engineering assessments of current state will be used to design remediation strategies to prolong the life of existing infrastructure in a cost-effective manner with minimal environmental impact.
- Autonomous cars Have the potential to transform mobility, bringing huge implications for how we plan our cities and design infrastructure ranging from airports to roads. With shared-car services helping people get accustomed to buying mobility as-a-service, many autonomous vehicles will be dedicated to specific routes while some will show up at people's door to carry them on vacation, and others will be used by commuters to replace public mass-transit systems. Alongside greater convenience, driverless vehicles offer the twin benefits of freeing up people's time and attention on the move, and being able to travel closer together, thus using roads more efficiently. In the coming years, as challenges like liability issues and unclear legal and regulatory frameworks are addressed, we expect global autonomous vehicle revenues to surge with fully autonomous long-range driving at highway speeds arriving within the next decade. Importantly, mobility in cities will need to be cross-modal, creating a need to integrate the infrastructure for autonomous cars with facilities for walking, cycling and public transport.





• Infrastructure 3.0: connecting systems - Bringing the pieces of the puzzle together Infrastructure 3.0 brings all parts of the infrastructure puzzle together and incorporates them into a single interdependent and reliable whole. Infrastructure 3.0 provides real-time optimization and incident handling across all domains. It allows us to adapt to the pressures of rapid urbanization, climate change, and other trends by utilizing advances in sensors, controls, and software to predict outcomes, take actions, and manage systems more effectively. For example, in an Infrastructure 3.0 world, smart buildings and the Smart grid cooperate seamlessly to optimize energy consumption. Smart buildings take on surplus energy when it is cheap and plentiful, storing it for later and feeding it back to the grid when demand is high. Traffic systems become more user-friendly, integrating all transport modes and operators so that travellers can optimally plan their journeys using real-time information – which reduces both congestion and emissions. And command and control centres are capable of integrating transport, water, gas, and electricity networks to exercise pre-emptive actions or respond swiftly in a crisis.



Regardless of where technology is taking us in immediate future, there is once certainty, and that is infrastructure has a bright future with plenty of capital available for the right projects that are structured efficiently to be commercially viable. With Trillions of USD committed to Global infrastructure over the next decade from Governments, Infrastructure Funds, Sovereign Wealth funds, Multi-lateral banks and Institutional Pension and Insurance funds, TREDIC is amongst the best placed of organizations globally to partner with, and meet your infrastructure needs.





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