

Trincomalee Tank Farm FS

Long Term Strategy

October 2023





Trinco Petroleum Terminal (Pvt.) Ltd.
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Colombo 00900,
Sri Lanka

23 October 2023

Dear Sir,

Subject: Report on Long Term Strategy for development of storage tanks, related area and allied facilities in UTF of the Trincomalee Tank Farm

We are pleased to submit herewith our report on “**Long Term Strategy for development of storage tanks, related area and allied facilities in UTF of the Trincomalee Tank Farm**”, in line with our agreed scope of work, as a deliverable in accordance with our contract dated November 14, 2022.

This report is a **sequel from the previously submitted “Short Term Strategy” report**, which outlined the development and operationalization of initial 9 tanks of the tank farm (submitted on 07 June 2023).

Save as described in the contract or as expressly agreed by us in writing, we accept no liability (including for negligence) to anyone else or for any other purpose in connection with this report and it may not be provided to anyone else.

Yours faithfully,

Deepak Mahurkar
Partner

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1. Executive Summary

Project Background

Trinco Petroleum Terminal (TPTL) is a joint venture between Ceylon Petroleum Corporation and Lanka IOC, operating a tank terminal in Trincomalee, Sri Lanka. The tank farm consists of 99 World War 2 era tanks, with only 14 tanks currently in use by Lanka IOC. TPTL has been allocated 61 tanks in the Upper Tank Farm (UTF) area and aims to develop and utilize them to establish Sri Lanka as an energy storage and trading hub. PwC has been engaged for the detailed feasibility study for the development of the 61 storage tanks, related area, and allied facilities in the Upper Tank Farm of China Bay Terminal, Trincomalee.

The study was conducted in three phases:

- (1) Initial market assessment: to assess the potential of commodity flow in the Trincomalee region and examine the capabilities of competing terminals, evaluate the facilities at nearby ports, and explore different lines of businesses for TPTL
- (2) Short term strategy report: developed on the basis of the insights gathered by the team during their visit to the Trincomalee Terminal, wherein discussions were held with key stakeholders (LIOC Operations team at Trincomalee, TPTL board, and stakeholders from CPC and SLPA)
- (3) Long term strategy report: Subsequently to the submission of the short term strategy report, additional consultations with key industry players (oil majors and oil traders), and further market analysis was conducted to prepare the long term strategy

Identified Lines of Business

After the initial 9 tanks are functional in the short term, the next 51 tanks are to be refurbished and operationalized. We propose to conduct this activity in phases, so as to limit financial exposure for TPTL by gradually ramping up the terminal capacity adapting to the market demand. The business opportunity for the tank development is as follows.

It is proposed that TPTL operate as a storage terminal with blending operations

- TPTL have potential to position itself as a regional terminal operator in the long term, based on the insights gained from the market study. The company will provide refurbished tanks to Oil Majors and Oil Traders, allowing them to store both finished and unfinished liquid products in the petroleum or non-petroleum sectors. Additionally, if necessary, these customers will have the option to blend the stored products to meet market demand.

The revenue in this business model will be generated through two main channels. Firstly, through storage rentals obtained by sub-leasing the tanks, which will be optimized through negotiated long-term storage contracts. Secondly, pumping and pipeline charges will be applied to cover the operational expenses associated with running the tank terminal.

Developments Required:

It is proposed that TPTL operate as a storage terminal with blending operations

- Renovation of tanks to ensure their suitability for use
- Establishment of supporting infrastructure such as pipelines, pumping systems, digital control systems for the tank farm, provision of utilities like electricity connections, fire-safety equipment and firewater supply throughout the tank farm, additional blending facility as per demand, and implementation of high safety standards to attract international customers to the terminal
- Utilization of the marketing team's expertise to promote the services offered by the terminal and position Trincomalee as a leading terminal operator and storage destination for the remaining tanks
- Construction of an additional jetty with greater water depth to accommodate larger vessels, such as Suezmax and VLCCs, in order to facilitate the handling of larger quantities of traded products in the long term.

Implementation Roadmap: This strategy involves making additional capital expenditures to prepare the terminal for storage and blending operations, recruiting the appropriate workforce, and enhancing the jetty facilities to accommodate larger vessels. In this business model, TPTL follows an asset-light approach as they own and lease the tanks, while the lessees assume the commodity risk.

Developments Required in Infrastructure

Following the initial operationalization of 9 tanks, the remaining 51 tanks will undergo a similar development process. This involves:

- Conducting a detailed health assessment to determine the specific refurbishment needs, primarily focusing on base plates, shells, and roofs.
- The pipeline network will have to be extended and integrated with the existing system to accommodate various product types.
- To support trade and increase capacity, a new oil jetty might be constructed based on business requirement after implementation of Phase 1 and feedback from customers. This new jetty needs to be developed by SLPA as per the port regulations of the country and the competencies required for the same
- Fire safety systems will be implemented for the 51 tanks, adhering to handling capacity and safety regulations.
- Grid connections will be established to ensure a stable electricity supply.
- Land clearance will be necessary for leasing tanks and constructing a solar power plant.
- Pumping facilities may be augmented/enhanced to optimize product transfer
- The existing trestle will be utilized (connecting the pipeline from Dolphin Jetty to the tanks redeveloped in the short term) until the new jetty is developed. Considering potential extensions or new developments, the pipelines may have to be extended/added to connect the new jetty to the upper tank farm

Financial Evaluation of the Project

The long-term financial evaluation of the project has considered the addition of the remaining 51 tanks in five phases, starting from year 3 (on top of the 9 tanks that is to be added initially). For the purpose of high-level financial evaluation, tanks have been clustered into **phases based on the physical location** of the tanks in the tank farm.

	Year 0	Year 3	Year 4	Year 5	Year 6	Year 7
Tank Additions	9	14	8	8	7	14
Total Tanks	9	23	31	39	46	60
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06

Condition of the remaining 51 tanks considered to be as same as the outcome of the health study of the 10 tanks that were conducted already. During each phase, the capex considered for Year 0 is expected to increase by 3% per year to account for the increasing general price levels during the project period.

	Year 0	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Tank Additions	9	14	8	8	7	14	60
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06	
Total Capex (USD Mn)	11.9	14.1	8.7	9.0	8.2	15.9	67.7

For the high-level financial evaluation, we have only considered the terminal services operation as the most sustainable option. Under this option, the restored tanks' total capacity can be used for terminal operations to store different kinds of petrochemicals that are exchanged in in the region. To have a reasonable capacity and promote itself as a terminal storage destination, the whole refurbished capacity is proposed to be assigned for terminal operations. The port is anticipated to be available for the storage of any kind of product, including petrochemicals and edible oils. **Potential products that could be targeted for terminal operation** are evaluated in detail under the **'Market Potential' section of the report**.

An assumption was made to have the maximum market share attraction by TPTL to be ~25% by Year 20 for the implementation of Phase 2 – Phase 6 operations. The total terminal market potential is expected to grow by only 2% per annum throughout the evaluation period of 12 years. However, a **conservative assumption of only ~8 refills per tank per year are considered** under the financial evaluation,

The terminal operating business is a streamlined operational activity that has **strong EBITDA margins** and **modest revenue figures**. For the purpose of conducting the financial analysis, we have taken **average storage and handling costs into account**. The estimated charges may vary based on the product composition of fuel being stored, and the market positioning strategy that TPTL executes during the project period.

As a **conservative assumption, a maximum of only up to 80% of the total tank capacity is considered to be leased out on average** for Phase 02 stage onwards – fixed storage income calculated only for this capacity. Meanwhile, the pipeline and pumping income calculated based on the total volumes expected to be handled per annum.

Constative assumption made on the on **terminal cash flow of the project, assuming a constant cashflow beyond year 20** (future capex requirement assumed to be same as the annual depreciation). There's high potential for TPTL to achieve a growth in terminal cashflows via incorporation of industry best practices, efficient service delivery procedure and embedding an effective marketing process.

Terminal Operations	
IRR (%)	10%
Simple Payback (Years)	12
Discounted Payback (Years) ^	16

[^] Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with a floor rate of 10%

	Phase 02	Phase 03	Phase 04	Phase 05
Phase-Wise IRR (%)	22	18	15	14

Risk Assessment

The project risk assessment has been done as follows-

- Regulatory Risk:** The project must comply with import and export regulations set by the government. However, the risk level is low because CPC and LIOC, the joint venture partners of TPTL, already have approval to conduct this business in Sri Lanka. There is a possibility of revisions to taxation policies and benefits like import duty waivers, exemptions from the Board of Investment (BOI), and potential inclusion in the Strategic Development Projects Act. These factors pose a medium level of risk.
- Infrastructure Risk:** The development of new jetty and mooring facilities is required to accommodate larger vessels, posing a medium level of risk. The 51 tanks identified for long-term development are situated in a dense forest, and their current state is uncertain, necessitating further examination and investment. However, this risk level is low. The involvement of multiple stakeholders, including SLPA and the Government of Sri Lanka, may lead to project delays, posing a medium level of risk.
- Demand Risk:** Sustainable Marine Fuels have emerged as eco-friendly alternatives for the shipping industry, addressing carbon emissions. However, their specific storage requirements and the increasing adoption of sustainable energy pose a medium risk by potentially reducing future demand for petroleum products. Unanticipated shifts in the global economy and changes in the global political landscape create a high risk, impacting energy demand and trade flows. The establishment of a new refinery near Hambantota port, producing Bunker grade fuel, presents a medium risk as it may shift demand from Trincomalee to Hambantota. Existing players in the Sri Lankan petroleum market protecting their market share and the development of new storage tank terminals in a neighboring country pose medium and low risks, respectively, by bringing about challenges and shifting demand away from Trincomalee. Additionally in the long run, growth in consumption of alternate fuels (LNG run vessels, renewables, new gen alternate fuels like Hydrogen, and increased use of biofuels) may substitute the demand for the

products proposed to be stored in the terminal. This risk can be mitigated by adapting the tank terminal to store a wider range of products like biofuels, and develop alternate sources of revenue generation like renewable power generation

- **Financing Risk:** The project financing for the Trincomalee tank farm redevelopment project presents a medium risk. An optimal financing structure needs to be developed, considering the status of the Sri Lankan economy and the appetite of financial markets. Debt funding will be sought from both local and international financiers. The promoters of the project will provide limited capital. Additionally, refurbishing the 51 tanks requires a substantial investment and a longer duration before they can be commissioned for operational use, also posing a medium risk.
- **Political Risk-** Political pressure on private sector participation might create some resistance, citing geo-political involvement. However, CPC being the major shareholder would eliminate any arguments on sale of state assets
- **Environmental Risk-** The Trincomalee tank farm redevelopment project carries a high environmental risk. All construction operations must adhere strictly to environmental regulations and guidelines to minimize disturbance to the marine ecosystems. The port of Trincomalee houses important marine habitats such as coral reefs, mangroves, and sea grass beds, which support a wide range of fish and marine species. These ecosystems also serve as crucial breeding grounds for blue whales, sperm whales, and dolphins. However, the increased activity associated with the project could potentially disrupt these ecosystems and harm their inhabitants.
- **Operational Risk-** Efficient support services from the Sri Lanka Ports Authority (SLPA) and other regulatory bodies, along with prompt approvals for product storage and discharge, are crucial for the smooth operation of tank storage and bunkering businesses. TPTL must comply with the conditions set by the Central Environment Authority (CEA), Marine Pollution Prevention Authority (MPPA), and Coast Conservation Department (CCD) to ensure environmental compliance. Adherence to these approvals is mandatory for the project's operational activities

Recommendations

- Taking into account the presence of 51 tanks earmarked for long-term development, TPTL should prioritize the construction of a terminal designed for storage and blending purposes. This venture holds promise, as preliminary market research has garnered positive interest from significant prospective customers keen on storing and promoting products from Trincomalee. Therefore, in the long run, TPTL may contemplate expanding port infrastructure to accommodate larger vessels by establishing a pipeline connecting the Single Buoy Mooring (SBM) to the jetty and gradually extending terminal operations.
- It is suggested that the tanks be developed and operationalized in a phased manner, with clusters of 6-14 tanks redeveloped one after the other in seven phases. During the initial operational phase with first nine tanks, TPTL will have better visibility on types of customers to be focused on and products to be catered. Based on this knowledge, TPTL will be in a better position to customize tank development from Phase 02 onwards, while developing long term partnerships.

- In order to successfully attract a reasonable market share, TPTL must develop competitive value propositions and embed a culture of efficient service delivery, while incorporating industry best practices to its operational guidelines. Additionally, TPTL must work in collaboration with international investors and the government of Sri Lanka to develop additional infrastructure required to cater terminal requirements of large international operators, while effectively positioning Trincomalee as a modern terminal hub in South Asia region.
- TPTL may explore the option of partnering with the lessee for development of the terminal, which can help reduce the financial exposure for the company.

2. Market Potential

In development of the Long-Term Strategy, only terminal operation potential has been evaluated considering the regulatory and operational limitations in the operations of the TPTL Tank Terminal, and inputs received during discussions with the management.

2.1. Potential for storage terminal business

To assess the viability of storing various products in the tanks planned for long-term development, PwC conducted a study similar to the one conducted for the Short-Term Strategy. The market research focused on analyzing 12 petrochemical products, including Methanol, Para-xylene, Styrene Monomer, Benzene, MTBE, Ethanol, Petrol, Aviation Turbine Fuel, Fuel Oil, High-Speed Diesel, Biodiesel, and Edible Oil. These products were evaluated based on their trade activities within the vicinity of the Sri Lankan port of Trincomalee.

The evaluation process involved scoring the products based on three key criteria: Compatibility with the existing tanks, Market growth potential, and Potential for storage as determined by the Voice of Customer. Data for the analysis was primarily collected through secondary research, supplemented by interactions with potential customers in the market.

The "potential for storage" factor holds the highest importance, accounting for 40% of the evaluation. It serves as an indicator of the level of interest from potential customers in the current market for the selected products, demonstrating the confidence of all parties involved in effectively storing and marketing products from Trincomalee. The "compatibility" factor carries a weightage of 30% as it determines the necessary financial, infrastructural, and time resources required to safely store the chosen products. The remaining 30% weightage is assigned to the "market growth" factor in the region. This criterion assesses the potential growth of the products in the region, directly impacting the likelihood of those products being stored in Trincomalee.

After analyzing the collected data, a score was assigned to each product. Using an evaluation methodology, the ratings of all the criteria were taken into account to calculate the overall gross attractiveness score for each product. Based on these scores, the shortlisted products were then ranked accordingly.

Parameters	Technical consideration	Market attractiveness		Total score	Attractiveness ranking
	Compatibility with existing tanks	Potential for storage based on voice of customer	Market growth potential		
Assigned weights	30%	40%	30%		
Products	Scaled score (Score from 0-30)	Scaled score (Score from 0-40)	Scaled score (Score from 0-30)	Gross total (Score from 0-100)	
Fuel Oil	30.00	40.00	3.80	73.80	1

Parameters	Technical consideration	Market attractiveness		Total score	Attractiveness ranking
	Compatibility with existing tanks	Potential for storage based on voice of customer	Market growth potential		
Assigned weights	30%	40%	30%		
Products	Scaled score (Score from 0-30)	Scaled score (Score from 0-40)	Scaled score (Score from 0-30)	Gross total (Score from 0-100)	
High Speed Diesel	30.00	40.00	1.33	71.33	2
Petrol	15.00	40.00	9.10	64.10	3
Ethanol	30.00	5.00	24.54	59.54	4
Para-xylene	30.00	5.00	21.22	56.22	5
Benzene	30.00	5.00	16.21	51.21	6
BioDiesel	30.00	5.00	14.99	49.99	7
Methanol	30.00	5.00	12.02	47.02	8
Styrene Monomer	30.00	5.00	11.87	46.87	9
MTBE	30.00	5.00	7.43	42.43	10
Aviation Turbine Fuel	10.00	30.00	0.00	40.00	11
Edible Oil	30.00	5.00	2.00	37.00	12

The followings sections describe the detailed approach and methodology followed for scoring and arriving at the above ranking of the products.

2.1.1. Potential for terminal operations for third party storages

This parameter has been established through a comprehensive market testing exercise conducted with leading global terminal operators and traders. These interactions have provided valuable insights into the realistic storage potential of the 12 shortlisted products.

Based on the interactions thus far with various potential players, such as oil majors, traders, and bunkering companies, it is evident that the products they are interested in storing and marketing from Trincomalee are bunker fuel, MS (Motor Spirit), and HSD (High-Speed Diesel).

The attractiveness of bunker fuel sales from Trincomalee is driven by the dense traffic passing through the route and the growing market. Additionally, there is a willingness to store and sell MSD and HSD from Trincomalee due to other compelling reasons.

- One key feedback obtained from the soft market testing exercise is that oil refineries in Australia and New Zealand have been shutting down, and the demand in these markets is now being met through the Middle East and Asian regions. Singapore currently exports a significant amount of product to these markets as domestic refineries have been closed. Oil majors and traders have proposed Trincomalee as another potential location from which products can be exported to Australia and New Zealand, as traders require greater storage capacity to ship to these markets.

The closure of refineries in Australia and New Zealand has been primarily attributed to regional oversupply, sustained low refining margins, and the increasing volume of product exports from Asia and the Middle East. Consequently, it has become more feasible to import refined products rather than operate loss-making refineries. New Zealand's only refinery, The Marsden Point oil refinery, has been closed and converted into an import terminal, while Australia currently has only two operational refineries out of the previous eight. The import of products to Australia and New Zealand has seen significant growth in 2021 and 2022. These markets predominantly import gas oil and diesel, with South Korea being their largest importer, followed by Singapore and Taiwan. Traders are interested in tapping into this long-term market by utilizing TPTL's storage facilities, as these countries have no plans to resume refinery operations and will continue importing products from the region.

This criterion received a total of **40 points**, which was assigned to reflect the perspective of potential customers in the market. Scores were assigned to the listed products based on the insights gathered regarding their appeal for storage or trading. In cases where multiple products had the same level of attractiveness, the scores were determined by the compatibility of the products with the tanks.

The resulting ranking after analysis is as follows-

Product Name	Score based on potential for storage from voice of customer out of 40
Petrol	40
Fuel Oil	40
High Speed Diesel	40
Aviation Turbine Fuel	30
Methanol	5
Para-xylene	5
Styrene Monomer	5
Benzene	5
MTBE	5
Ethanol	5

Biodiesel	5
Edible oil	5

2.1.2. Compatibility with existing tanks

This analysis is similar to the one conducted for the short-term strategy as the tanks will be in a similar condition when they are operated. However, TPTL will have gained understanding on how to utilize the tanks based on their previous experience with the 9 tanks. The evaluation of compatibility between the shortlisted items and the existing tankage involved assessing technical specifications such as flash point, vapor pressure, and corrosion effects. These criteria were considered to determine the type of tank required for storing each product. Vapor pressure and flash point were examined to determine whether a floating or fixed roof tank would be necessary, while corrosion effects were assessed to ensure compatibility with the tankage metallurgy and identify any potential corrosion, softening, or swelling issues.

The compatibility of the existing tanks was scored based on two criteria:

1. Compatibility with existing Metallurgy (Carbon Steel):

- Excellent (15): Tankage metallurgy is suitable for storing the product without any detrimental effects, requiring no modifications to the existing tankage.
- Good (10): Minor effects such as slight corrosion or discoloration on tankage metallurgy, necessitating minor modifications to the existing tankage for storage.
- Fair (5): Moderate effects on tankage metallurgy, including softening, loss of strength, and swelling. It is not recommended to use the existing tankage for continuous storage of the product, as significant investments would be required to make them suitable.
- Poor (0): The product is incompatible with the existing tankage metallurgy and would severely impact the health of the tankage. Therefore, storing the product in these tankages is not recommended.

2. Compatibility with Fixed Roof Tank:

- Yes (15): The tankage can store the product in its current configuration due to low vapor pressure.
- No (0): The tankage cannot store the product in its current configuration due to high vapor pressure, requiring investments to establish the necessary configuration for safe storage.

These compatibility assessments provide insights into the technical requirements and modifications needed for storing the selected products in the existing tankage.

The resulting rankings after analysis was-

Product Name	Compatibility with existing Metallurgy i.e. Carbon Steel	Scaled score from 15	Compatibility with Fixed roof tank	Scaled score from 15	Total scaled score from 30
Methanol	Compatibility with CS- Excellent	15.00	Y	15	30.00
Para-xylene	Compatibility with CS- Excellent	15.00	Y	15	30.00
Styrene Monomer	Compatibility with CS- Excellent	15.00	Y	15	30.00
Benzene	Compatibility with CS- Excellent	15.00	Y	15	30.00
MTBE	Compatibility with CS- Excellent	15.00	Y	15	30.00
Fuel Oil	Compatibility with CS- Excellent	15.00	Y	15	30.00
High Speed Diesel	Compatibility with CS- Excellent	15.00	Y	15	30.00
Ethanol	Compatibility with CS- Excellent	15.00	Y	15	30.00
Biodiesel	Compatibility with CS- Excellent	15.00	Y	15	30.00
Edible oil	Compatibility with CS- Excellent	15.00	Y	15	30.00
Petrol	Compatibility with CS- Excellent	15.00	N	0	15.00
Aviation Turbine Fuel	Compatibility with CS- Good	10.00	N	0	10.00

2.1.3. Market growth potential

The evaluation of shortlisted products considered the projected growth rate of their trading activities in the study region, which is a crucial factor for long-term assessment. As the market for a product expands, the potential for its storage increases, thereby influencing the revenue potential. To evaluate the market potential, PwC analyzed the growth potential in two specific regions:

1. Region 1: South Asia (India and Bangladesh) and the South-East Asia region.
2. Region 2: India and Bangladesh.

Secondary research was conducted to determine the market size in these countries, utilizing reports and data published by oil-producing institutions. PwC analyzed historical market sizes and identified future growth trends for the shortlisted products.

Based on the growth potential in these regions, scores ranging from 0 to 30 were assigned to the shortlisted products. A maximum score of 10 was given based on growth potential in Region 1, while a maximum score of

20 was assigned for Region 2. These individual scores were then combined to determine the overall market growth potential for each product.

By considering the growth potential in these regions and assigning appropriate scores, a comprehensive understanding of the total market growth potential for the shortlisted products was obtained.

The rankings after the analysis results in-

Product Name	Growth rate for India + Bangladesh + SE Asia	Scaled score from 10	Growth rate for India + Bangladesh	Scaled score from 20	Total scaled score of 30
Ethanol	8.78%	4.54	13.25%	20.00	24.54
Para-xylene	7.79%	4.03	11.39%	17.19	21.22
Benzene	3.98%	2.06	9.38%	14.15	16.21
Biodiesel	19.34%	10.00	3.30%	4.99	14.99
Methanol	3.64%	1.88	6.71%	10.13	12.02
Styrene Monomer	5.74%	2.97	5.90%	8.90	11.87
Petrol	2.02%	1.04	5.33%	8.05	9.10
MTBE	0.64%	0.33	4.70%	7.10	7.43
Fuel Oil	-0.97%	0.00	2.52%	3.80	3.80
Edible oil	3.86%	2.00	-0.72%	0.00	2.00
High Speed Diesel	1.89%	0.98	0.23%	0.35	1.33
Aviation Turbine Fuel	-9.08%	0.00	-5.89%	0.00	0.00

2.2. Overall Economic Benefits of the Project to Sri Lanka

The redevelopment of the 61 tanks in the UTF is anticipated to bring several economic benefits to the country including overall maritime sector development, export revenue creation, Foreign Direct Investment (FDI) inflows and job creation. All these benefits will greatly contribute to making Sri Lanka and the city of Trincomalee an important trade hub for traders and oil majors around the world. The tank redevelopment will assist in realizing the strategic location of the Trincomalee Port as a maritime trading hub and attract more foreign vessels to the port.

- Contribution to the development of Sri Lanka’s maritime industry** – The redevelopment of the UTF will attract terminal operators, global traders and oil majors to operate from Trincomalee. This will potentially result in Trincomalee being positioned as a regional trading hub among the major international locations. Foreign operators will bring in their expert industry knowledge that would be transferred to the local market. Their specialized industry knowledge and innovative practices can shape Trincomalee to be a modern maritime hub in the region, while making a significant contribution to Sri Lanka’s maritime industry.

The potential growth in maritime activities due to the redevelopment of the tanks will enhance the economic value proposition of the port. This would encourage SLPA and other local authorities to effectively implement port development plans. The anticipated higher volume of vessels can help bring in state sector assistance, which is a critical factor to develop a port that meets international standards.
- Export revenue generation** – The refurbished tanks are mainly expected to be used for terminal operations to store various types of petrochemicals and related products that gets traded in the region. Oil majors and global traders are expected to hire these tankages on rent which will generate an inflow of foreign currency to the country. According to projections, it is anticipated that the redevelopment of these tanks will bring in a substantial amount of export revenue into the country. This will increase the country’s foreign currency reserves, while improving its balance of payments.
- Development of ancillary industries around the port** – As a result of increased port operations and related logistic/ industrial activities there is high potential to develop ancillary industries (i.e. ship/boat building and repairs, fuel bowser services etc.). Additionally, due to high movement of petroleum and related products there’s potential to attract petroleum related industries (i.e., paint manufacturing, petrochemical manufacturing, etc.). There’s substantial amount of bare land available around the port (owned by the SLPA and other government authorities), with potential to be developed as an industrial zone focused on export markets. Appropriate studies and market demand assessment need to be conducted to identify the most suitable industries.
- Increased FDI inflows** – Some terminal operators may prefer setting up in Trincomalee in the form of a BOOT model, which will increase FDI’s into the country. Furthermore, potential developments in the vacant land extent (i.e., development of a solar plant, new tankages, industrial activities) can bring in foreign investments to Trincomalee.
- Employment creation** – The project will create a number of skilled and un-skilled jobs pertaining to terminal and port operations, which are likely to be filled by locals living in and around the city of

Trincomalee. The jobs created will improve the quality of life of those living in the area. The workforce of the terminal will be mixed with expatriates which will provide locals the opportunity to learn and upskill themselves.

- **Increase in the country's petroleum storage capacity** – Each tank in the UTF has a capacity of 10 TMT. Accordingly, the redevelopment of the 60 tanks (one tank is irreparable) that belong to TPTL will add 600 TMT (assuming all tanks are restored) to the country's current storage capacity (of only 648 TMT). This additional capacity can make Trincomalee a feasible option for international oil majors and traders who are seeking expansion in the region.
- **Strategic petroleum reserve for the country** – The additional storage capacity added by the redevelopment of the tanks in the UTF also has the potential to act as a strategic petroleum reserve during a crisis. While we understand that TPTL will exclusively cater to the export market, we have identified that this capacity could be utilized to meet future local demand if the need arises.

A high-level estimation indicates that country's current storage of 648 TMT, is sufficient to meet approximately one and half months' worth of petroleum demand in Sri Lanka. The petroleum demand of the country is expected to increase with the economic recovery process, which would result in higher storage requirement.

Table 1 Historical Strategic Petroleum Reserve Analysis for Sri Lanka

Storage in SL (MT 000')	2014	2015	2016	2017	2018	2019	2020	2021	Average
Kollonawa Storage	500	500	500	500	500	500	500	500	
LIOC Trincomalee Storage (LTF)	148	148	148	148	148	148	148	148	
Estimated Total Storage	648	648	648	648	648	648	648	648	
Monthly requirement	432	408	470	543	533	552	459	478	484
Storage availability (in months)	1.5	1.6	1.4	1.2	1.2	1.2	1.4	1.4	1.4

Source: Market Research

Based on a high-level estimation of petroleum demand forecast for the period 2022-2030, the redevelopment of the UTF, including the 24 CPC tanks and the 60 TPTL tanks will be advantageous to sustain the current levels of storage in the country (one and half months of supplies). While only the 24 tanks coming under CPC are authorized to service the local market, additional capacity from TPTL tanks may also be required in future to a certain extent to cater industrial market demand.

Table 2: Forecasted Strategic Petroleum Reserve Analysis for Sri Lanka

Storage in SL (MT 000')	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average
Kollonawa Storage	500	500	500	500	500	500	500	500	500	
LIOC Trincomalee Storage (LTF)	148	148	148	148	148	148	148	148	148	
TPTL Trincomalee Storage (UTF)	-	-	-	90	90	90	90	90	90	
Phase 1										
CPC Trincomalee Storage (UTF) ^									240	
TPTL Trincomalee Storage (UTF)									510	
Phase 2 ^										
Estimated Total Storage	648	648	648	738	738	738	738	738	1,488	
Monthly requirement	477	504	534	566	600	617	635	655	676	585
Storage availability (in months)	1.4	1.3	1.2	1.3	1.2	1.2	1.2	1.1	2.2	1.3

^ Total capacity is considered to be added in 2030 for evaluation purpose

Source: Market Research and PwC Analysis

Additionally, the entry of new international petroleum players to the local retail market would result in more efficient procurement practices and more petroleum related industry developments. There's potential to develop new partnerships with such players to utilize TPTL storage, that is expected to be developed with modern technology. Presence of major oil traders in Trincomalee will make the TPTL storage a more attractive procurement source for new parties.

- **Potential Energy Generation** – The UTF has a vacant space of 350 Acres, while there's substantial amount of state land in the surrounding area (owned by the SLPA and other government authorities). With Trincomalee being one of the areas of high solar potential, solar panels can be setup to generate much needed renewable energy to the country. This would add to the country's energy generation and help the government the target of 70% power generation from renewable sources by 2030.

On TPTL's perspective, depending on the land allocated (out of the total vacant area of 350 Acres) for the development of the solar plant, the potential energy generation capacity will vary as follows.

Table 3 Land Allocation for Solar Plant Development

Land Allocated (%)	Land Allocated (Acres)	Potential Capacity (MW)	Average Annual Generation (GWh)
60	210	60	88,878
65	228	65	96,284
70	245	70	103,691
75	263	75	111,097
80	280	80	118,504

2.3. Cross Country Pipeline Development

Sri Lanka has a low annual fuel demand, which stands at a modest 4 million metric tonnes. This makes the feasibility of a domestic refinery questionable, leading to the exploration of an alternative solution – a pipeline. The proposed Tamil Nadu-Sri Lanka pipeline has a primary objective: to offer a dependable and cost-effective fuel supply. This is especially crucial given that India's petroleum exports to Sri Lanka amounted to \$1.78 billion in FY23.

This pipeline project is anticipated to stretch over a distance of around 600 km, encompassing both on-land and subsea sections, with potential extensions reaching up to 700 km. The primary beneficiary of this supply network would be Trincomalee, which is emerging as a significant energy hub. With Sri Lanka's current reliance on petroleum shipments, it remains exposed to supply disruptions, making the pipeline an attractive option for secure and affordable fuel supply.

Nevertheless, the implementation of this project faces challenges stemming from a lack of regulatory framework. It's imperative to conduct an Environmental Impact Assessment (EIA) to safeguard the local ecology and tourism. Furthermore, the nation should bolster its sovereign fuel storage capacity. Notably, the pipeline development impact on TPTL would be minimal, as its products are primarily intended for domestic use. Additionally, there is potential for leasing LIOC tanks in UTF to Sri Lankan agencies or prospective export customers.

3. Proposed Business Model

TPTL has the ownership of 61 tanks in the upper tank farm of Trincomalee, which are planned to be commercialized on a phased plan in the next 5 years. After the operationalization of 9 tanks in the short term, the next 51 tanks are to be operationalized in several phases.

It is proposed that TPTL operate as a storage terminal with blending operations

- TPTL may consider venturing into the terminal operation business in the long term, based on the insights gained from the market study. The company will provide refurbished tanks to Oil Majors and Oil Traders, allowing them to store both finished and unfinished liquid products in the petroleum or non-petroleum sectors. Additionally, if necessary, these customers will have the option to blend the stored products to meet market demand.

The revenue in this business model will be generated through two main channels. Firstly, through storage rentals obtained by sub-leasing the tanks, which will be optimized through negotiated long-term storage contracts. Secondly, pumping and pipeline charges will be applied to cover the operational expenses associated with running the tank terminal.

Developments Required:

- Renovation of tanks to ensure their suitability for use
- Establishment of supporting infrastructure such as pipelines, pumping systems, digital control systems for the tank farm, provision of utilities like electricity connections, fire-safety equipment and firewater supply throughout the tank farm, additional blending facility as per demand, and implementation of high safety standards to attract international customers to the terminal
- Utilization of the marketing team's expertise to promote the services offered by the terminal and position Trincomalee as a leading terminal operator and storage destination for the remaining tanks
- Construction of an additional jetty with greater water depth to accommodate larger vessels, such as Suezmax and VLCCs, in order to facilitate the handling of larger quantities of traded products in the long term.

Implementation Roadmap: This strategy involves making additional capital expenditures to prepare the terminal for storage and blending operations, recruiting the appropriate workforce, and enhancing the jetty facilities to accommodate larger vessels. In this business model, TPTL follows an asset-light approach as they own and lease the tanks, while the lessees assume the commodity risk.

3.1. Business model overview of storage terminal business along with blending

In the long run, TPTL has the opportunity to convert their remaining 51 tanks into storage terminals. These tanks can be leased to traders or other tank operators who are interested in storing products that are in high demand and experiencing growth in the neighboring market. The process of implementing this plan will be carried out gradually in phases. TPTL can also consider equipping their tanks with blending mechanisms, similar to those developed in the short-term plan. This would enable lessees to reduce their input costs by

preparing the final product in-house. Since these tanks belong to same era as of the first 9 tanks, hence with appropriate modifications, these tanks can also be utilized for storing both petroleum and non-petroleum products.

The key strategic factors that would influence this business opportunities would be-

- **Key stakeholders** - Successful operation of a storage terminal for fuel or non-fuel products relies on establishing collaborative partnerships with key stakeholders. The Sri Lanka Port Authority plays a crucial role in regulating customs procedures and overseeing handling operations at the port. Similarly, shipping lines are essential for facilitating the transportation of products to and from the port, effectively connecting the storage terminal with the main vessels.

Investors who contribute to the development of tank terminals and the port itself also hold significant importance. They provide the necessary capital for the development, which is typically a substantial investment. Furthermore, these investors may have a vested interest in utilizing the Trincomalee port to facilitate their own trade activities.

In the storage terminal business, the primary clientele consists of oil traders and major oil companies. These customers require storage facilities to safely store their fuel or non-fuel products. They lease tanks within the terminal to ensure a secure and controlled environment for their inventory.

- **Resources required** - The successful establishment and operation of a storage terminal in Trincomalee's UTF (Upper Tank Farm) depends on several important resources. These resources include:
 - Safety-Compliant Tanks: It is crucial to have tanks that meet strict safety standards to store different types of products, such as black and white oil, as well as non-petroleum liquids. These tanks ensure the stored substances remain secure and intact. The refurbishment of these tanks would follow a similar plan to the tanks refurbished during the short-term phase.
 - Pipeline System with Pigging Mechanisms: A well-designed pipeline system with pigging mechanisms is necessary for the smooth transportation of various oils and liquids within the terminal. The pigging mechanisms help maintain the cleanliness and integrity of the pipelines. This would involve expanding the existing network developed during the short-term phase according to the planned phases of development.
 - Port Infrastructure: Sufficient infrastructure at the port is required to handle the arrival and departure of products at the terminal. This includes berths, loading/unloading areas, storage yards, and appropriate handling equipment.
 - Blending Mechanism: A reliable blending mechanism is essential for producing products that meet specific requirements and customer needs. This ensures the ability to create customized blends with consistent quality and characteristics.
 - Manpower: A competent workforce is crucial for the daily operations of the storage terminal. This workforce comprises skilled personnel from both the port authority and the TPTL team,

who are responsible for overseeing different domains such as marketing, operations, and finances. These individuals play a vital role in ensuring the facility runs smoothly by managing tasks like maintenance, operations, and administrative duties.

- Administration and Financing: Sufficient administrative support and financial resources are necessary for effectively managing the storage terminal business. This includes activities such as record-keeping, regulatory compliance, financial management, and investing in infrastructure upgrades.
- **Capital required**- The establishment of a storage terminal operation requires an initial investment that includes several essential components. These components are as follows:
 - Refurbishment of the remaining 51 tanks: Funds are allocated for refurbishing the remaining 51 tanks to meet strict safety regulations. This may involve structural improvements, installation of safety features, and ensuring compliance with industry standards. Other necessary investments include clearing the dense forest surrounding the tanks and conducting health assessments of the tanks.
 - Development of pipelines: A significant part of the investment is dedicated to the installation of new pipelines, extending the existing pipeline system set up for the previous 9 tanks. These pipelines serve as channels for the efficient transportation of products from the port to the UTF.
 - Blending units and instrumentation: The investment covers the setup of blending units equipped with advanced instrumentation. These units are designed to meet specific requirements and allow for precise blending of products, ensuring compliance with regulatory standards and customer specifications. This addition is made in addition to the blending units already developed for the initial 9 tanks. The investment in blending units would depend on the regional requirement for blending products.
 - Pumps and mixers: Adequate funding is allocated for the installation of pumps and mixers that facilitate the movement and mixing of products within the storage terminal. These equipment may require upgrades in terms of specifications and performance based on the increased workload resulting from the operationalization of the remaining 51 tanks.
 - Additional infrastructure: The investment covers the construction of additional supporting infrastructure, fire-fighting infrastructure, extension of electricity connections throughout the terminal, and other workplace amenities. These amenities contribute to the overall functionality and operational efficiency of the storage terminal.
- **Operational expenses**- The operational costs of the storage terminal include a range of expenditures. These costs encompass:

- Feeder ship network operationalization: Funds are allocated for establishing and maintaining a feeder ship network to provide efficient logistics services for transporting products to and from the terminal.
 - Firefighting unit: A dedicated firefighting unit is maintained to ensure safety compliance and to promptly respond to any fire-related incidents that may occur within the terminal.
 - Periodic repair and maintenance: Regular repair and maintenance expenses are incurred to keep the infrastructure, equipment, and facilities of the storage terminal in good working condition.
 - Laboratory for product testing: The operation of a laboratory for conducting necessary product testing is accounted for in the operational costs. This ensures quality control and compliance with industry standards.
 - Asset insurance costs: The storage terminal's assets, including tanks, pipelines, and other infrastructure, are insured to mitigate potential financial risks and protect against any unforeseen events or damages.
 - Administrative costs: Various administrative expenses, such as staffing, office supplies, communication, and record-keeping, are included in the operational costs of running the storage terminal.
 - Miscellaneous expenses: Additional miscellaneous expenses, such as utility bills, security services, training programs for staff, and regulatory compliance fees, are accounted for in the overall operational costs.
- **Key Activities** -The primary operations of the storage terminal business center around several key activities, encompassing:
 - Transfer of products: The products received are to be transferred between the port and the storage tanks using a well-established pipeline infrastructure and pumping system. These products can be petroleum and non-petroleum products.
 - Safe and uncontaminated storage: Ensuring the secure and contamination-free storage of liquids is a crucial aspect of the business. This involves implementing stringent measures and adhering to strict protocols to preserve the integrity and quality of the stored products.
 - Blending and quality control: As per specific requirements, stored products may undergo blending to achieve desired specifications. This process involves carefully combining different components to meet customers' needs while maintaining adherence to rigorous quality assurance standards.
 - **Customer Segments** - The customer segments for TPTL tank farms encompass a range of entities, including oil trading companies, oil majors, and tank terminal companies seeking to expand their network. These customers rely on the storage services provided by TPTL for their products.

The revenue sources for this business are derived from various sources:

1. Storage rentals: TPTL charges rental fees for the storage of products in their tank farms. Customers pay for the space they utilize to store their liquids, whether it's crude oil, refined products, or other substances.
2. Blending charges: TPTL offers blending services to customers who require specific product specifications. Blending charges are applied when different components are combined to meet the desired composition and quality standards requested by the customers.
3. Pipeline and pump usage charges: TPTL operates a pipeline infrastructure and pumps for the efficient transportation of liquids between the storage terminal and the port. Customers utilizing these services to transport the products between the port and tank terminal will be charged accordingly.

4. Developments Required in Trincomalee Tank Terminal Infrastructure

After the operationalization of the initial 9 tanks identified in the short-term plan, the development process for the remaining 51 tanks would be executed in a similar manner. These developments would include-

- **Tank Renovation:** The tanks in the upper tank farm (UTF), which were built in the mid-1940s, have remained unused since then. It can be assumed that the remaining 51 tanks require similar repairs as the 9 tanks identified for refurbishment. The repair work would primarily focus on their base plates, shells, and roofs. However, more detailed requirements for the refurbishments shall be identified after detailed health assessment of these tanks
- **Pipeline Connectivity:** As the 51 tanks are refurbished in phases, the pipeline network needs to be extended and connected to the existing grid accordingly. The specifications of the pipelines will depend on the type of product planned for storage in each cluster of tanks. Pipeline specifications may vary for black oil (18 inches), white oil (14 inches with a pigging mechanism), chemicals (8 inches with a pigging mechanism), and edible oil (10 inches).
- **New Oil Jetty:** The proposed construction of a new oil jetty would enhance the port's attractiveness for trade in the region by increasing its capacity to accommodate vessels with higher draft and handle two vessels simultaneously. This development, combined with the refurbishment of the 51 tanks to accommodate a large storage volume, would facilitate the feasibility of refined petroleum trading in the region.
- **Fire Safety System:** A fire safety system will be developed in the upper tank farm for the initial 9 tanks to comply with safety regulations. With the addition of the remaining 51 tanks in the long term, this system can be extended based on the development phases. If the existing setup is insufficient, a new fire safety system needs to be constructed.
- **Grid Connection for Electricity:** The UTF is located in an area with dense forest cover, resulting in a lack of electricity connections. To support day-to-day operations, it is essential to obtain an electricity connection from the nearby grid. The establishment of these connections will also depend on the cluster of tanks being refurbished.
- **Land Clearance:** The long-term business plans for the UTF include leasing and storing petroleum and non-petroleum products in tanks, as well as the construction of a solar power plant on available land. These developments require specific areas of the forest to be cleared to make them accessible and suitable for laying the necessary infrastructure.
- **Pumping Facility:** With pipelines installed between the oil jetty and UTF, a stepped pump setup may be required if the head at the vessel's pumping facility is insufficient to deliver products to the 51 tanks, which are located farther away compared to the initial 9 tanks. While gravity can be utilized for product

transfer from the tanks to the jetty due to the higher elevation of the UTF, a pump may be necessary to achieve the required flow rate if the natural flow is low.

- Trestle Development: The trestle constructed for the initial 9 tanks under the short-term strategy will also be utilized for the refurbishment of the next 51 tanks. Depending on the utilization and throughput of the short-term setup, further extension or development of a new trestle may be necessary for efficient operations.

5. Risk Matrix

Risk	Description	Risk Level
Regulatory Risk	Requirement to adhere to import, export regulations imposed by the government - CPC and LIOC are the JV partners of TPTL, who already have approval to conduct this business in Sri Lanka	Low
	Revisions to taxation policies and various benefits, such as waivers on import duties for machinery and equipment, exemptions provided by the Board of Investment (BOI), and the possibility of being included in the Strategic Development Projects Act.	Medium
Infrastructure Risk	Jetty and mooring facilities - new facilities needs to be developed to accommodate larger vessels	Medium
	51 tanks identified for long term development plan are located in a dense forest, and their current state is uncertain. Therefore, further examination and investment are necessary, and this process will require a significant amount of time.	Low
	There are multiple stakeholders involved in the redevelopment project, such as SLPA and the Government of Sri Lanka. Coordination amongst these might lead to project delays	Medium
Demand Risk	Sustainable Marine Fuels have emerged to address carbon emissions in the shipping industry. These eco-friendly alternatives may require specific storage conditions, while the growing adoption of sustainable energy could reduce the future demand for petroleum products.	Medium
	Unanticipated shifts in the global economy, such as the COVID-19 pandemic, can impact global energy demand. Additionally, changes in the global political landscape, such as tensions among Europe and Russia or the US and China, can also influence trade flows and energy demand.	High
	The establishment of a new refinery near Hambantota by a new player will lead to the production of Bunker grade fuel. This will cause a shift in demand from Trincomalee to Hambantota.	Medium
	The existing players in the Sri Lankan petroleum market will make additional efforts to protect their market share (i.e. offering discounted prices, entering in to long term contract with customers, etc), which may bring about unprecedented challenges to the TPTL project.	Medium
	Development of new storage tank terminals in a neighboring country would lead to a change in demand for storage, shifting it away from Trincomalee.	Low
	In the long run, growth in consumption of alternate fuels (LNG run vessels, renewables, new gen alternate fuels like Hydrogen, and increased use of biofuels) may substitute the demand for the products proposed to be stored in the terminal. This risk can be mitigated by adapting the tank terminal to store a wider range of products like biofuels, and develop alternate sources of revenue generation like renewable power generation (may also look into keeping some space for development of LNG storage infrastructure in the future).	Medium
Financing Risk	Project financing - optimum financing structure to be developed for the project taking in to consideration the status of the Sri Lankan economy and appetite of financial markets. Debt funding to be secured from local and international financiers. Promoters to provide limited capital to the project	Medium
	Refurbishment of the 51 tanks necessitates a significant investment and a longer duration before they can be commissioned for operational use.	Medium
Political Risk	Political pressure on private sector participation - some resistance can be expected, citing geo-political involvement. However, CPC being the major shareholder would eliminate any arguments on sale of state assets	Medium
Environmental Risk	All construction operations must strictly adhere to environmental regulations and guidelines, ensuring minimal disturbance to marine ecosystems.	High
	The marine ecosystems within Trincomalee port, consisting of coral reefs, mangroves, and sea grass beds, play a crucial role in sustaining the abundance and diversity of fish and other marine species. These habitats also serve as vital breeding grounds for blue whales, sperm whales, and dolphins. However, heightened activity within the port could potentially disrupt these ecosystems and their inhabitants.	High

Risk	Description	Risk Level
Operational Risk	Efficient support services from SLPA (Sri Lanka Ports Authority) and other relevant regulatory bodies, including prompt approvals for specific product storage and discharge, are essential for the smooth operation of tank storage and bunkering businesses.	Medium
	All activities carried out by TPTL must adhere to the conditions set by the Central Environment Authority of Sri Lanka (CEA), Marine Pollution Prevention Authority (MPPA), and Coast Conservation Department (CCD). Compliance with these environmental approvals is mandatory.	Medium

6. Financial Evaluation of the Project

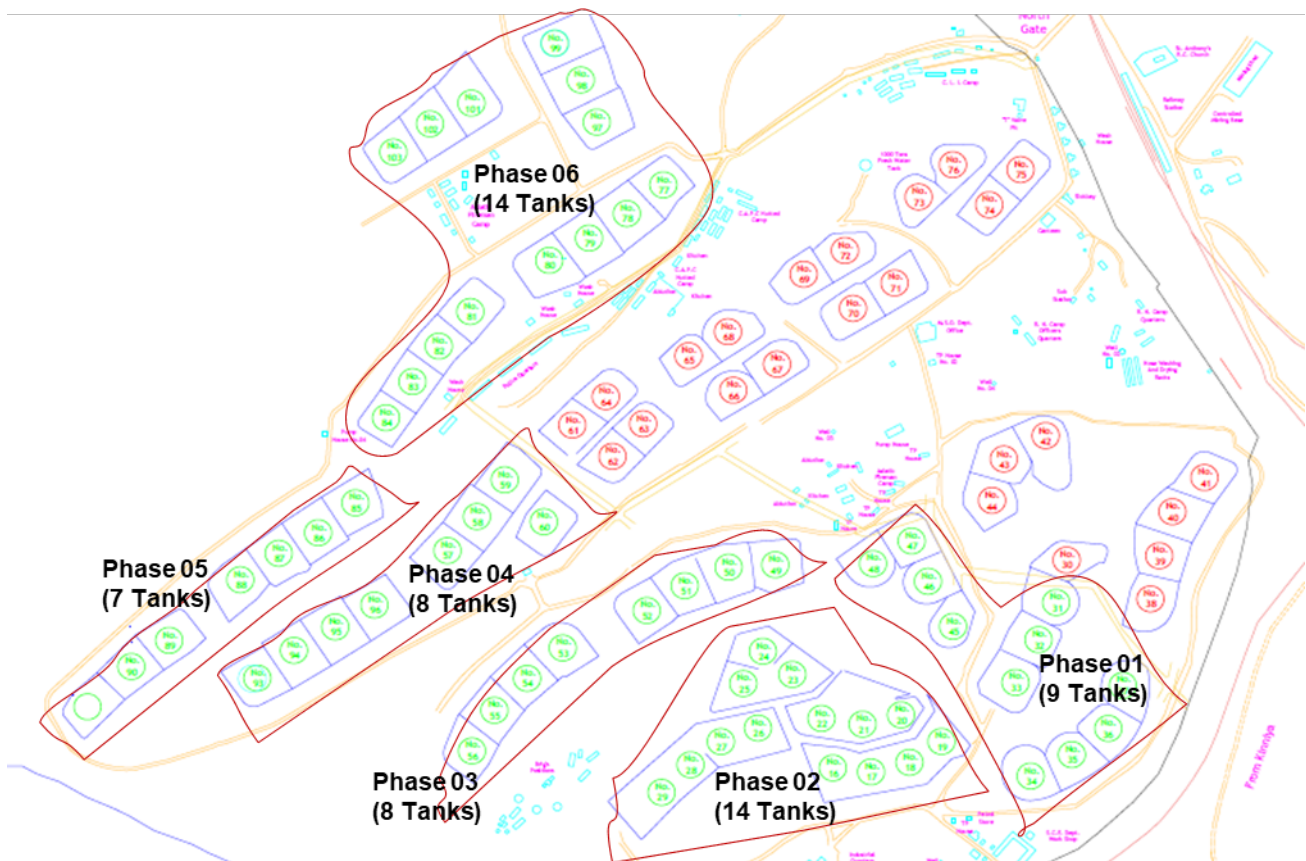
The financial evaluation of the project is based on a range of variables obtained from industry experts, primary and secondary research conducted as at report date. **Certain variables and assumptions are time based, and may vary based on multiple market conditions and economic developments.**

Long term financial evaluation of the project has considered the addition of remaining 51 tanks in several phases, starting from year 3 (on top of the 9 tanks that is to be added initially). For the purpose of high-level financial evaluation, tanks are expected to be refurbished in **several phases based on the physical location** of the tank farm. **Please note that detailed health assessment for each tank, design studies, and location and terrain analysis must be conducted prior to execution of the actual refurbishment plan.**

Table 4 - Estimated Plan for Tank Additions

	Year 0	Year 3	Year 4	Year 5	Year 6	Year 7
Tank Additions	9	14	8	8	7	14
Total Tanks	9	23	31	39	46	60
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06

Figure 1 - Estimated Layout of Tank Additions



6.1.1. Capex Requirement

The Capex requirement under this model assumes that Phase 1 of the project (initial nine tanks) is already executed as per the 'Short-term Strategy Report'. This section will be a continuation from Year 3 onwards where refurbishment and operations of the remaining 51 tanks are to be considered. Refurbishment of tanks accounts for ~55% of the average capex requirements of these phases, with pipeline development accounting for ~18% of the requirement. Total capex requirement for **Phase 2 to 6 is estimated at USD 55.9 Mn – total capex for Phase 1 to 6 is estimated at USD 67.7 Mn**

- Condition of the remaining 51 tanks are considered as same as the outcome of the health study of the 10 tanks that have been conducted already – similar tank refurbishment estimates considered
- Additional costs considered for the installation of fire extinguishing infrastructure for new tank farm area. The trestle and related development and chemical laboratory infrastructure costs are assumed to be incurred in Phase 1 of the project, and to be utilized for this phase as well.
- Overall contingency cost of 10% estimated to capture all installation activities and additional equipment requirements.
- During each phase, the capex considered for Year 0 is expected to increase by 3% per year to account for the increasing general price levels during the project period.

Table 5 – Summary of Initial Investment Requirement for TPTL

	Year 0	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Tank Additions	9	14	8	8	7	14	60
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06	
Total Capex (USD Mn)	11.9	14.1	8.7	9.0	8.2	15.9	67.7

Table 6 - Breakdown of Key Capex Items

Investment Requirement (USD '000s)						
	Year 3	Year 4	Year 5	Year 6	Year 7	
Phase	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06	
Tank refurbishment	7,928	4,666	4,806	4,332	8,923	
Civil works**	994	585	603	543	1,119	
Investment for pipeline	2,225	1,676	1,726	1,669	2,504	
Instrumentation cost	104	61	63	57	117	
Tank gauging system and mixers	187	110	113	102	210	
Valves, pipes and fittings	244	144	148	134	275	
Electrical work	104	61	63	57	117	
Additional blending equipment	1,036	610	628	566	1,167	
Investment for other equipment	1,282	791	815	746	1,443	
Total Investment	14,104	8,704	8,966	8,205	15,874	

** - Inputs provided by TPTL

- In terms of pipeline development, the main four product lines have been taken into consideration (white oil, black oil, edible oil and chemical oil) to accommodate any product requirement for terminal operation. Although all four lines may not be fully utilized during the project period, the line connectivity will be required to continue connectivity to reserve options open for potential opportunities. In light of not having precise details of the pipeline layout, connectivity is considered for each tank based on the estimated distance received from the client and the basic understanding of the geographic layout of the land.

Table 7 - Estimates of Pipeline Distance

Pipeline Distance (km)	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Distance between the two tank clusters ¹	1.0	1.0	1.0	1.0	1.0
Inter-tank distance among the tanks ²	1.7	1.0	1.0	0.8	1.7
Additional provision of 20% ³	0.5	0.4	0.4	0.4	0.5

Note: 1. Two-way pipelines considered among clusters – relatively high distance considered to factor elevation variations, 2. Pipelines considered for four sides of a single tank, 3. Contingency provision to factor additional pipe laying requirements

6.2. Project Implementation

High-level financial evaluation for tank refurbishment has been considered under Terminal services operations based on the market study outcomes, site evaluations and stakeholder discussions conducted.

The restored tanks' total capacity can be used for terminal operations to store different kinds of petrochemicals that are exchanged in in the region. To have a reasonable capacity and promote itself as a terminal storage destination, the whole refurbished capacity can be assigned for terminal operations. The port is anticipated to be available for the storage of any kind of product, including petrochemicals and edible oils. **Potential products that could be targeted for terminal operation** are evaluated in detail under the **'Market Potential' section of the report**.

- TPTL's articles of association have provisions to import, store and export petroleum-related products, or **'any other products'** – petroleum-related products such as petrochemicals, as well as edible oil can be stored in the TPTL storage.
- Key divisions to be operated at TPTL under this option will be Operation and Maintenance, Laboratory, Finance and Accounting and Human Resources. Staffing of the Operation and Maintenance division to be increased based on the addition of refurbished tanks.

Table 8 - Summary Financial Indicators

Terminal Operations	
IRR (%)	10%
Simple Payback (Years)	12
Discounted Payback (Years) [^]	16

[^] Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with a floor rate of 10% with a 70:30 Debt to Equity Structure.

The terminal operating business is a streamlined operational activity that has strong EBITDA margins and modest revenue figures. For the purpose of conducting the financial analysis, we have taken **average storage and handling costs into account**. The estimated charges may vary based on the product composition of fuel being stored, and the market positioning strategy that TPTL executes during the project period.

- It must be noted, in order to achieve effective margins on the terminal operations, there must be updated infrastructure at the port, and more effective operational strategies and methodologies must be followed. For this purpose, best practices and benchmarking exercises can be executed by the management to maintain international standards in operations to attract and retain a robust customer base.
- Since aggressive marketing expenditure was to be made in Phase 1 of the project, we have taken 5% of annual revenue during Years 5 – Years 10, following which marketing expenditure as a percentage of revenue is expected to decline and stabilize at 2% of revenue during the project period (cf. general price level increase of 3%).

Figure 2 - Revenue (USD million) and EBITDA Margins (%) for Terminal Operations

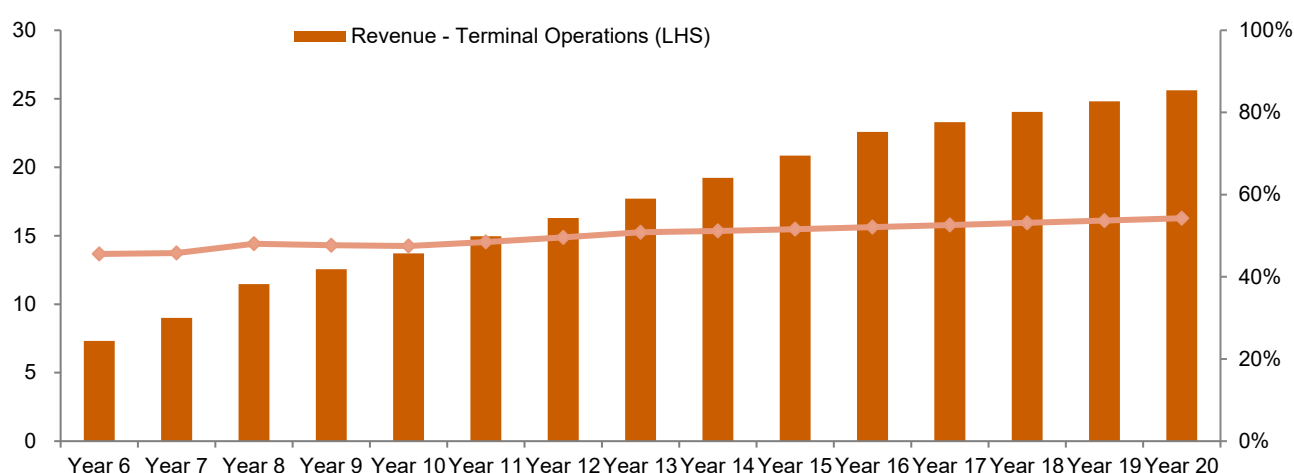


Table 9 - Summary Financials of Terminal Operations

USD' 000 (Cumulative Financials)	Year 1-5	Year 6-10	Year 11-15	Year 16-20
Revenue	9,741	54,049	89,044	120,322
Operating Expenditure	(3,754)	(17,502)	(30,843)	(41,136)
Operating Profit	5,987	36,548	58,200	79,186
Repair and Maintenance Cost	(1,001)	(6,821)	(9,097)	(10,546)
Administrative and Other Expenses	(101)	(1,560)	(1,929)	(2,236)
Sales and Marketing Expenses	(487)	(2,702)	(2,243)	(2,406)

EBITDA	4,397	25,465	44,931	63,997
PAT	(965)	459	26,962	37,448
Operating Profit Margin %	61.5%	67.6%	65.4%	65.8%
EBITDA Margin %	45.1%	47.1%	50.5%	53.2%
PAT Margin %	-9.9%	0.8%	30.3%	31.1%
IRR (%)	10%			
Simple Payback (Years)	12			
Discounted Payback (Years) ^	16			

^ Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with a floor rate of 10%

6.2.1. Phase- Wise Scenarios

The high-level phase-wise financial evaluation considers the outcomes of the tank additions by each phase. This provides a breakdown of the financial model from phase 2 – phase 5. This evaluation has been carried out in order to assist TPTL determine the optimal mix of tankages that are required to be operationalized.

6.2.1.1. Up to Phase 2

Table 10. Estimated Plan for Tank Additions Up to Phase 2

	Year 0	Year 3
Tank Additions	9	14
Total Tanks	9	23
Phase	Phase 01	Phase 02

Figure 3. Revenue (USD million) and EBITDA Margins (%) for Terminal Operations Up to Phase 2

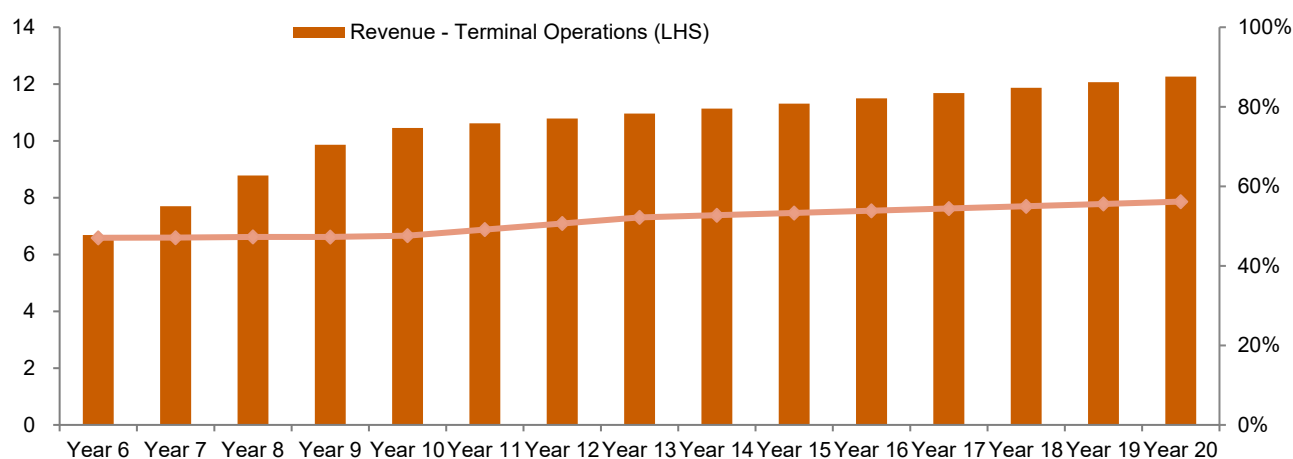


Table 11. Summary Financials of Terminal Operations Up to Phase 2

USD' 000 (Cumulative Financials)	Year 1-5	Year 6-10	Year 11-15	Year 16-20
Revenue	10,584	43,479	54,812	59,367
Operating Expenditure	(3,754)	(17,209)	(20,993)	(20,762)
Operating Profit	6,830	26,270	33,819	38,606
Repair and Maintenance Cost	(1,275)	(3,539)	(4,103)	(4,756)
Administrative and Other Expenses	0	0	0	0
Sales and Marketing Expenses	(529)	(2,174)	(1,416)	(1,187)
EBITDA	5,026	20,557	28,299	32,662
PAT	1,467	12,941	17,693	21,226
Operating Profit Margin %	64.5%	60.4%	61.7%	65.0%
EBITDA Margin %	47.5%	47.3%	51.6%	55.0%
PAT Margin %	13.9%	29.8%	32.3%	35.8%
IRR (%)	22%			
Simple Payback (Years)	6			
Discounted Payback (Years) ^	8			

^ Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with floor rate of 10%

6.2.1.2. Up to Phase 3

Table 12. Estimated Plan for Tank Additions Up to Phase 3

	Year 0	Year 3	Year 4
Tank Additions	9	14	8
Total Tanks	9	23	31
Phase	Phase 01	Phase 02	Phase 03

Figure 4. Revenue (USD million) and EBITDA Margins (%) for Terminal Operations Up to Phase 3

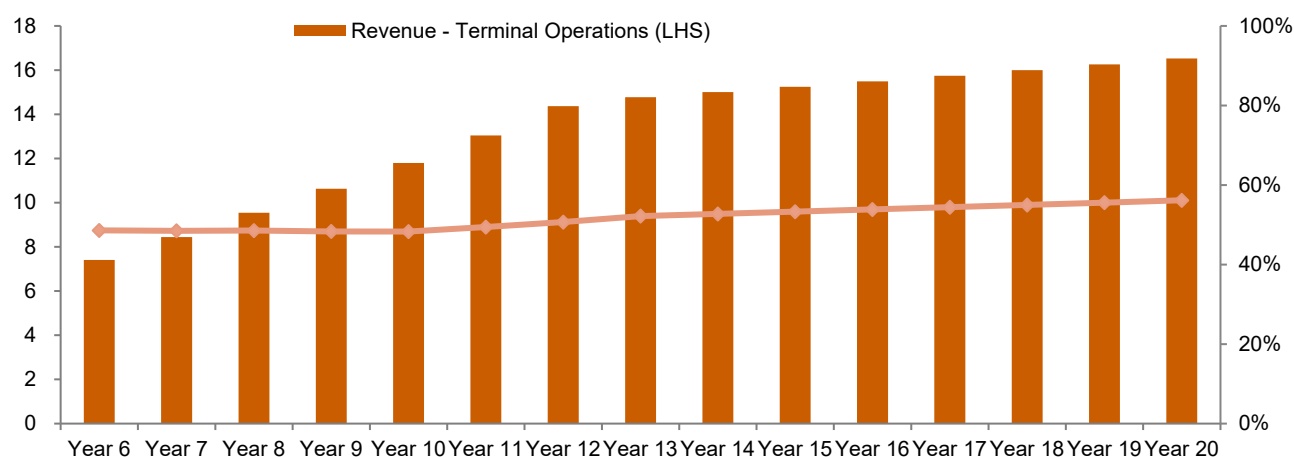


Table 13. Summary Financials of Terminal Operations Up to Phase 3

USD' 000 (Cumulative Financials)	Year 1-5	Year 6-10	Year 11-15	Year 16-20
Revenue	11,280	47,821	72,436	80,017
Operating Expenditure	(3,754)	(17,502)	(27,576)	(27,983)
Operating Profit	7,526	30,320	44,859	52,034
Repair and Maintenance Cost	(1,501)	(4,770)	(5,530)	(6,410)
Administrative and Other Expenses	0	0	0	0
Sales and Marketing Expenses	(564)	(2,391)	(1,853)	(1,600)
EBITDA	5,462	23,159	37,476	44,023
PAT	323	13,249	22,905	28,114
Operating Profit Margin %	66.7%	63.4%	61.9%	65.0%
EBITDA Margin %	48.4%	48.4%	51.7%	55.0%
PAT Margin %	2.9%	27.7%	31.6%	35.1%
IRR (%)	18%			
Simple Payback (Years)	7			
Discounted Payback (Years) ^	10			

^ Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with floor rate of 10%

6.2.1.3. Up to Phase 4

Table 14. Estimated Plan for Tank Additions Up to Phase 4

	Year 0	Year 3	Year 4	Year 5
Tank Additions	9	14	8	8
Total Tanks	9	23	31	39
Phase	Phase 01	Phase 02	Phase 03	Phase 04

Figure 5. Revenue (USD million) and EBITDA Margins (%) for Terminal Operations Up to Phase 4

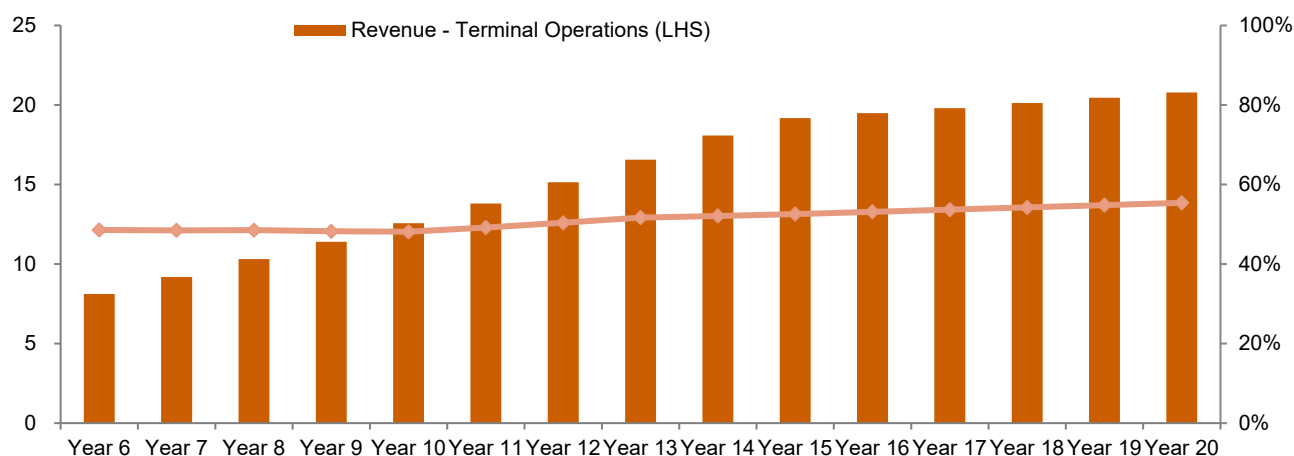


Table 15. Summary Financials of Terminal Operations Up to Phase 4

USD' 000 (Cumulative Financials)	Year 1-5	Year 6-10	Year 11-15	Year 16-20
Revenue	11,280	51,589	82,768	100,666
Operating Expenditure	(3,754)	(17,502)	(30,606)	(35,204)
Operating Profit	7,526	34,088	52,162	65,462
Repair and Maintenance Cost	(1,501)	(6,001)	(6,957)	(8,065)
Administrative and Other Expenses	(101)	(555)	(643)	(745)
Sales and Marketing Expenses	(564)	(2,579)	(2,083)	(2,013)
EBITDA	5,360	24,953	42,479	54,638
PAT	(2)	10,142	26,643	34,361
Operating Profit Margin %	66.7%	66.1%	63.0%	65.0%
EBITDA Margin %	47.5%	48.4%	51.3%	54.3%
PAT Margin %	0.0%	19.7%	32.2%	34.1%

IRR (%)	15%
Simple Payback (Years)	9
Discounted Payback (Years) ^	11

^ Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with floor rate of 10%

6.2.1.4. Up to Phase 5

Table 16. Estimated Plan for Tank Additions Up to Phase 5

	Year 0	Year 3	Year 4	Year 5	Year 6
Tank Additions	9	14	8	8	7
Total Tanks	9	23	31	39	46
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05

Figure 6. Revenue (USD million) and EBITDA Margins (%) for Terminal Operations Up to Phase 5

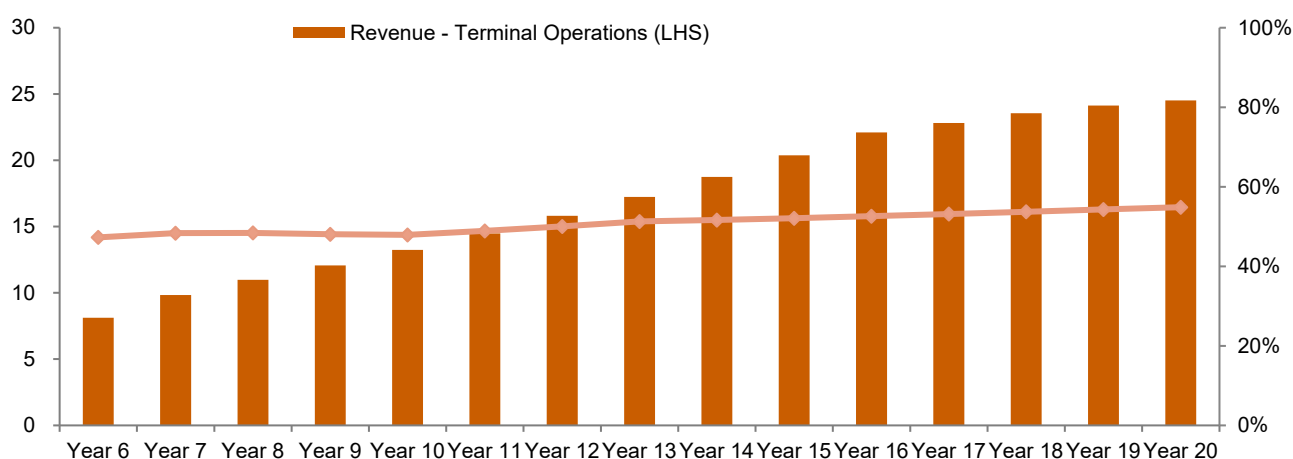


Table 17. Summary Financials of Terminal Operations Up to Phase 5

USD' 000 (Cumulative Financials)	Year 1-5	Year 6-10	Year 11-15	Year 16-20
Revenue	11,280	54,256	86,644	117,108
Operating Expenditure	(3,754)	(17,502)	(30,843)	(40,801)
Operating Profit	7,526	36,755	55,800	76,308
Repair and Maintenance Cost	(1,501)	(6,875)	(8,205)	(9,512)
Administrative and Other Expenses	(101)	(1,109)	(1,286)	(1,491)
Sales and Marketing Expenses	(564)	(2,713)	(2,181)	(2,342)
EBITDA	5,360	26,057	44,128	62,962

PAT	(2)	7,244	27,610	39,047
Operating Profit Margin %	66.7%	67.7%	64.4%	65.2%
EBITDA Margin %	47.5%	48.0%	50.9%	53.8%
PAT Margin %	0.0%	13.4%	31.9%	33.3%
IRR (%)	14%			
Simple Payback (Years)	10			
Discounted Payback (Years) ^	13			

[^] Assuming a composite USD discount rate of 20% currently - to be reduced by 1% annually with floor rate of 10%

6.2.2. Key Revenue Assumptions

TPTL's operational revenue will largely be dependent on the success of the market share achievement in both terminal operations. High-level analysis conducted to identify the total market potential for both business operations – **these estimates may vary based on the market positioning to be carried out by TPTL** and the extent of marketing activities to be conducted.

- In assuming the market share of terminal operations, bulk tankers carrying liquid fuel in the East Coast India (ECI) region are taken into consideration. For the purpose of our analysis, it is assumed that TPTL will capture 5% of the ECI market share from the commencement of operations in Phase 2. The market share capture is expected to be driven by additional demand created mainly owing to expansion from Phase 1 operations.
 - An assumption was made to have the maximum market share attraction by TPTL to be ~25% by Year 20 for the implementation of Phase 2 – Phase 6 operations. The total terminal market potential is expected to grow by only 2% per annum throughout the evaluation period of 12 years. However, a **conservative assumption of only ~8 refills per tank per year is considered** under the financial evaluation (i.e., every 45 days), indicating a further opportunity to capture and expand the market share.
 - Only bulk tankers (carrying liquid fuel) are considered for a market share of terminal operation, and Crude oil tankers have been excluded from the market share calculation, as found less feasible with current infrastructure (i.e. port infrastructure to be substantially developed to accommodate large vessels that transport crude oil, non-existence of a refinery in close proximity, etc.)
 - Terminal operation can have more market potential for expansion (with a wide variety of specialized product offerings and establishment of innovative products/practices), but additional port infrastructure is required to be developed to accommodate the same. The current financial

evaluation was conducted based on minimal infrastructure development in the tank farm, as well as the port infrastructure post the initial investment.

Table 18 - Initial Estimations of the Total Market Share – Terminal Operation

Terminal Operation	East India	Bangladesh	Myanmar
Bulk tankers ^	195	22	0
Average vessel size (MT)	5,000		
Average requirement (MT)	975,000	110,000	0
Market demand per month (MT)	1,085,000		
Market demand per annum (MT)	13,020,000		

[^] Excluding Crude Oil tankers

Source: Volza Grow Global

- The terminal operation has two main revenue sources – 1. the storage income and 2. the pipeline and pumping income. Storage income is a fixed charge for renting out of the tank capacity, calculated for total tank capacity facilitated by TPTL. Additionally, the pipeline and pumping income is a variable charge based on the volumes handled by TPTL - this charge will vary based on the usage level of tanks.
 - As a **conservative assumption of only up to 80% of the total tank capacity is considered to be leased out on average** from Phase 02 stage – fixed storage income is calculated only for this capacity. Meanwhile, the pipeline and pumping income are calculated based on the total volumes expected to be handled per annum
 - **Competitive charges considered for storage income and the pipeline and pumping income considering the current charges at Indian ports and the port of Colombo.** Both charges are expected to have a moderate growth of 2% per annum, throughout the evaluation period
 - There's also the potential to obtain additional charges by providing services such as Nitrogen Blanketing and Heating for specific product requirements. However, such additional procedures will require a certain level of service excellence and capex investment, hence not considered for the financial analysis conducted

6.2.3. Key Cost Assumptions

The main operational cost factor to be considered in terminal operations is the handling cost. Repair and maintenance costs, administration costs, and sales and marketing costs are the supplementary costs considered in the financial evaluation to reach EBITDA.

- Terminal operations will have a storage charge directly as an operating profit. Out-of-the-pipeline and pumping charge **net value of 40% is considered for operating profit in initial years, with an annual increase to reach a maximum of ~60% net value towards later operational years.** Both charges are estimated to grow at 2% per annum, throughout the evaluation period

- Repair and maintenance cost estimate of USD 25,000 per tank considered, taking into consideration the costs at LTF operations and factoring additional charges for improved operations (and for multiple usage) – annual repair and maintenance cost expected to grow at 3% per annum
- Administrative expenses are calculated based on a high-level estimation of key operational staff estimates. Each operational division of TPTL to be headed by a senior staff member and four junior staff members per division. Current financial projection was developed with the assumption that there will be certain staff members for all divisions be available in the Phase 01 of the project. We expect one senior staff member, along with four junior staff members to be added during each stage of tank additions (in order to factor the aspects of two shift operations and other operational requirements).
 - Terminal operations will require 4 senior staff and 16 junior staff members initially, under Phase 1 of the Project (Operation and Maintenance, Laboratory, Finance and Accounting and Human Resources and Admin divisions). New staff additions in Phase 2 to 6 will be dedicated to Operation and Maintenance division. **At phase 6 the total workforce will be totaling to 35 personnel.**
- Sales, marketing and other expenditure are calculated as a % of the annual revenue with relatively higher allocations being made from Year 5 - Year 10 (i.e. 5% of the annual revenue), while allocations are to be reduced by 1% each year until a baseline of 2% of revenue is expected to be maintained.
- Plant and equipment depreciated on reducing balance method, considering 5% annual depreciation (assuming a 20-year plant life).
- A 5-year accelerated capital allowance is applied to the project (given the investment value), while the corporate income tax rate is considered at 30%. Further, taxable losses can be carried forward in Sri Lanka for six years and the same has been taken into account to evaluate the feasibility of the Long-term strategy. In addition, under the new investment promotion schemes, other tax allowance advantages can be reaped to increase the project viability and IRR
- Constantive assumption made on the on **terminal cash flow of the project, assuming a constant cashflow beyond year 20** (future capex requirement assumed to be same as the annual depreciation). There's high potential for TPTL to achieve a growth in terminal cashflows via incorporation of industry best practices, efficient service delivery procedure and embedding an effective marketing process.

6.2.4. Jetty Expansion Basis

With a phase-wise implementation of new tanks, the utilization of the existing jetty is expected to increase. The jetty is currently being used by the Lower Tank Farm (LTF). However, with the commencement of operations in the Upper Tank Farm (UTF), a situation may arise where the existing jetty may no longer be sufficient to handle cargo throughout the calendar year. This could necessitate the development of a new jetty or the expansion of an existing one. To determine the timeline for the new jetty's development, the calculation is as follows:

Assumptions:

- The frequency of filling of tanks is 8 times per year.

- The tank utilization for a year is at 80%.
- The average vessel size carrying cargo and operating in the port is 30000 DWT.
- The time taken to Load/Unload a 30000 DWT vessel is 2 days and other miscellaneous requirements in 0.5 days adding to a total of 2.5 days to get in and out of the port.
- It is considered that the frequency of vessels brings in similar quantity of cargo will be twice for UTF in comparison to LTF as the cargo for LTF is for domestic consumption purpose, while it is for export purpose for UTF.

Analysis-

Years	0	1	2	3	4	5	6	7
UTF								
Addition of Tanks each year	9	0	0	14	8	8	7	14
Operational Tanks	9	9	9	23	31	39	46	60
Total volume of operational tanks (TMT)	90	90	90	230	310	390	460	600
Max volume filled in a year (TMT)	720	720	720	1840	2480	3120	3680	4800
Total volume filled in a year (TMT)	576	576	576	1472	1984	2496	2944	3840

LTF								
Total volume of operational tanks (TMT)	148	148	148	148	148	148	148	148
Max volume filled in a year (TMT)	1184	1184	1184	1184	1184	1184	1184	1184
Total volume filled in a year (TMT)	947.2	947.2	947.2	947.2	947.2	947.2	947.2	947.2

Jetty Operation								
Total Volume handled in a year (TMT)	1523.2	1523.2	1523.2	2419.2	2931.2	3443.2	3891.2	4787.2
Total Volume for UTF (TMT)	576	576	576	1472	1984	2496	2944	3840
Total Volume for LTF (TMT)	947.2	947.2	947.2	947.2	947.2	947.2	947.2	947.2
Total number of vessels were found by dividing total volume by avg. capacity of a vessel (30 TMT)								
Total vessels for UTF	19	19	19	49	66	83	98	128
Total vessels for LTF	32	32	32	32	32	32	32	32
Duration was derived considering 2.5 days/vessel								
Duration for UTF Vessels (in days)	96	96	96	245	331	416	491	640
Duration for LTF Vessels (in days)	79	79	79	79	79	79	79	79
Total duration of jetty being occupied (in days)	175	175	175	324	410	495	570	719
When would jetty need expansion	49%	49%	49%	90%	114%	137%	158%	200%

7. Sources for Arranging Funds

7.1. Recent Port Developments Activities in the Region

Regional Port Developments

As per market research, there has been 84 major port construction projects around the world from 2020-22 period, with estimated investment value in excess of USD 39 Bn. The top ten port related investments are estimated to have an investment value of approx. USD 22 Bn. Research identifies that three large scale port developments have been in the Asia-Pacific Region and had an estimated investment value of USD 4.9 Bn. The details of these regional projects are as follows.

Project	Location	Description	Cost (in USD Bn.)	Financed by	Completion period
Ramayapatnam Seaport Development	India	This project is the most expensive port project in India, that involves the construction of a port on 890 Ha of land. The development has been broken down into three phases, with first phase comprising the development of 324 Ha of land. The infrastructure developments encompass construction of marine facilities, transportation and storage facilities, storage units, distribution units, loading and unloading facilities, access roads and other related infrastructure, and the installation of a high-end security system. This project is being developed as a public-private partnership	1.4	PPP. Govt. of AP	2024-25
Map Ta Phut Industrial Port Development Phase III	Thailand	This project involves an expansion of the Map Ta Phut Port in Thailand with the aim of growing imports of natural gas and raw fluid material for the petrochemical industry. It is also aimed to serve the growing volumes of LNG being traded in the region. The project involves the construction of a deep-sea port on 160 Ha of land in two stages. It includes the construction of raw liquid material terminals on 32 Ha of land and natural gas terminals on 32 Ha of land, a service terminal, a 2,229-meter-long quay, warehouses, and a settling pond of 72 Ha of land.	1.7	PPP Govt of Thailand and Gulf MTP LNG Terminal Co. ¹	2025-26
Sorong Port Development	Indonesia	This is the one of the most expensive port project in Asia-Pacific and is being developed with main aim of boosting the cargo transport sector and to handle the heavy motor cargo capacity in the region. The project involves the construction of a new port with 2.95 million twenty-foot equivalent units (TEUs) and a 50 Ha container yard fronted by a 1,440 meter berth	1.8	-	2036
Matarbari Deep Sea Port	Bangladesh	The plan involves the construction of a 14.3-kilometer waterway, a multipurpose jetty measuring 300 meters, and a container jetty spanning 460 meters. The channel will have a depth of 16 meters and a width of 350 meters. Furthermore, the Chittagong Port Authority intends to acquire three tugboats,	1.6	Japan International Cooperation Agency (JICA) and Bangladesh's	2026

¹ [The signing ceremony of the PPP contract for the Map Ta Phut Industrial Port Phase 3 \(Phase 1\)](#)

		two key-gantry cranes, a multipurpose gantry crane, six rubber-tired gantry cranes, and extend the North Breakwater dam by 397 meters.		Ministry of Shipping	
Patimban Port Development Project	Indonesia	Due to the anticipated container-handling demand of 10.24 million TEUs by 2025, Tanjung Priok Port's current capacity of 8.63 million TEUs per year is insufficient. Consequently, the construction of a new port is necessary, particularly considering that the ongoing extension plan for the existing port will not be finished until after 2030. In 2015, the Ministry of Transportation of Indonesia conducted a study to determine the new port's location and identified the Patimban area in Subang Regency, West Java, as the preferred site for development	1.9	Japan International Cooperation Agency (JICA)	2027
Development of Port at VadHAVAN	India	The purpose of constructing this port is to establish a deep draft facility (20 m) capable of handling various types of cargo, such as containers, liquid goods (including LNG), and break bulk cargo. Maharashtra currently has only two major ports, Mumbai and JNPT. Mumbai Port has faced limitations in cargo transportation due to urban development and limited harbor depths. Similarly, JNPT has reached its capacity due to natural constraints. The port will add container capacity of 14.3 Million TEUs in the year 2035	4.9	Government of India and Maharashtra Maritime Board.	2030-35

7.2. Local Debt Market

It is observed that most infrastructure projects have been funded by loans obtained by the government. Often these would be loans from bilateral or multilateral agencies, and to a lesser extent, loans from the local banking system. There have been either very few or no instances of infrastructure projects being financed through pension or insurance funds or by utilizing the capital markets. The following table depicts a high-level overview of project financing criteria in the Sri Lankan banking sector.

Table 19 - Summary of Project Financing Details of Local Banks

Maximum Tenor, in Years	7 – 10
Up-front Arrangement Fee, bps	100–150
Floor Rate	Average Weighted Prime Lending Rate (AWPLR)
Margin Rate, bps	200-400
Percentage of foreign debt out of total debt for project financing	> 50%
Typical Debt to Equity ratio	80:20 to 60:40
Timeline to financial close (month)	> 12
Minimum Debt Service Coverage Ratio covenant levels, (X)	1.2x - 1.5x

Nominal Interest Rates	~20% (since early - 2022, the Sri Lankan government imposed high interest rates to curtail country's prevailing high inflation; this is expected to normalise to previous rates of ~10% in the next few years)
Real Interest Rates	Currently Negative (due to prevailing high inflation)
Security Package	Project Assets, Project Cashflow, Shares of the Project Company, Corporate guarantees from the Parent Company

Most private banks are cautious in accepting guarantees from government agencies if the project itself does not have strong revenue-generation capacity. However, private banks lend to profitable state-owned entities that have an assurance of consistent cash flows and strong repayment ability.

Lenders expect mortgage rights on the land and the machinery of the project company rather than a corporate guarantee issued by the promoter company (shareholder), to ensure the project developer remains committed to complete the project. Payments from government agencies are usually requested to be directed to an account maintained at the lending bank or maintained under ESCROW arrangements.

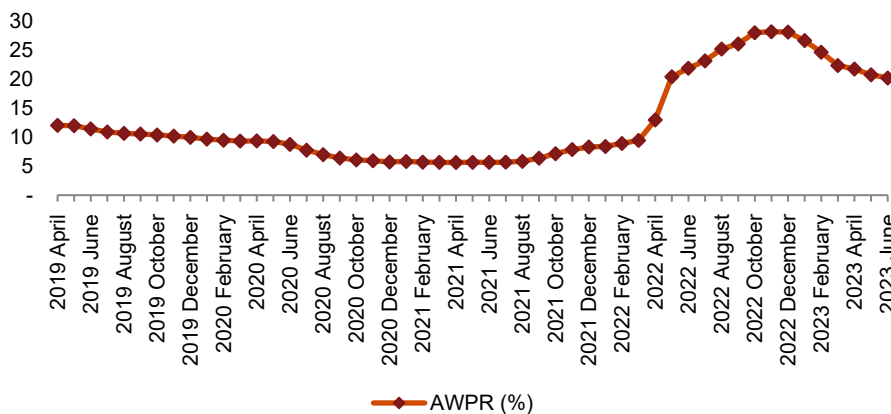
While there is appetite for PPPs by domestic investors, there are liquidity constraints in the domestic market (in terms of debt value and tenors available) mainly because of the crowding out by high public borrowing. In addition, commercial banks typically have limited capacity to hedge their interest rate risk as swap markets in Sri Lanka are currently limited to a duration of less than one year. Given the limited amount of capital that many banks have in Sri Lanka, single borrower limits could also prevent many domestic investors from raising the amounts of debt required to finance some of the larger PPPs.

Local funding is currently a costly affair owing to the country's present economic condition. At present, the country's Average Weighted Prime Lending Rate (AWPR) stands close to **20%** (As of June 2023). The country's **AWPR has averaged 23% over the last year**. AWPR rates have been **below 10% since January 2020** and began **hiking up only from April 2022** owing to economic crisis faced by the country. Therefore, such rates were only a result of unprecedented events and are expected to return to normal levels over the next few years.

The local interest rates have improved rapidly from the start of June 2023, as the Central Bank of Sri Lanka (CBSL) reduced its standing deposit facility rate and standing lending facility rate by 250 basis points to 13% and 14%, respectively (from 15.5% and 16.5%). This has been the first rate cut implemented by the CBSL since 2020, signaling a faster than expected rebound from the financial crisis.

Figure 7 - Historical AWPR Rates

Historical AWPR Rates

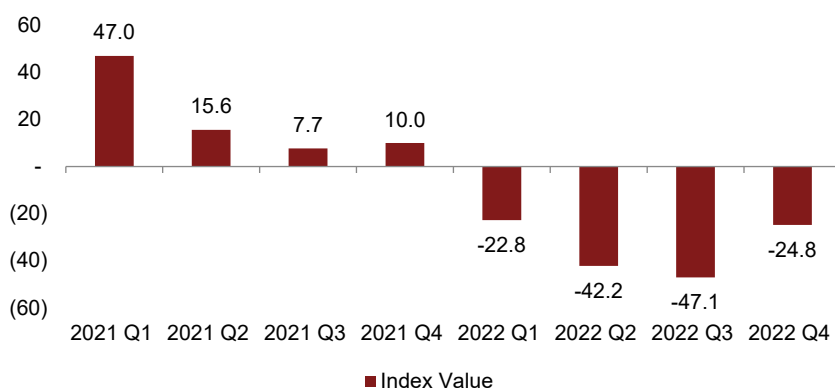


Source: CBSL

In addition to the high cost of servicing debt, local Licensed Commercial banks (LCB's) and Licensed Specialized Banks (LSB's) may not provide debt for funding projects mainly due to deteriorating creditworthiness amid reduced repayment capacities as a result of high inflation and declining income levels in the country. Moreover, LKR and USD liquidity constraints, and ongoing moratoriums and loan restructurings continues to have a negative impact on their willingness to lend. As depicted in the below figure, local bank's willingness to lend index has significantly declined.

Figure 8 - Bank's Willingness to Lend

Bank's Willingness to Lend



Source: CBSL

We have analyzed the **Sri Lanka's International Sovereign Bonds (ISB's)** in order to gauge the International Bond Market and USD rates. The last ISB issue was in June 2019 for a principal of USD 1.5 Bn and carried a coupon rate of 7.6%.

Table 20 - Historical of ISB Issuances in Sri Lanka

Issued Date	Amount (USD MN)	Maturity Period (Years)	Coupon	Due Date
2007 Oct	500	5	8.3	2012

Average coupon rate ~ 6.6%

2009 Sep	500	5	7.4	2014
2010 Sep	1,000	10	6.3	2020
2011 Jul	1,000	10	6.3	2021
2012 Jul	1,000	10	5.9	2022
2014 Jan	1,000	5	6.0	2019
2014 Apr	500	5	5.1	2019
2015 May	650	10	6.1	2025
2015 Oct	1,500	10	6.9	2025
2016 Jul	500	6	5.8	2022
2016 Jul	1,000	10	6.8	2026
2017 May	1,500	10	6.2	2027
2018 Apr	1,250	5	5.8	2023
2018 Apr	1,250	10	6.8	2028
2019 Mar	1,000	5	6.9	2024
2019 Mar	1,400	10	7.9	2029
2019 Jun	500	5	6.4	2024
2019 Jun	1,500	10	7.6	2029

Source: CBSL

A comparison between the latest ISB issuances and local AWPR rates of the corresponding months indicates that a large premium is paid for debt obtained from the local market in comparison to foreign debt. The cost of local funding is **on average 5% higher** than foreign funding when considering the latest ISB issuances from April 2018 to June 2019.

Table 21 - Comparison of ISB Interest Rates

Issued Date	Amount (USD MN)	Maturity Period (Years)	Coupon Rate (%)	Due Date	Local AWPR Rate (%)	Difference between Local and ISB rates (%)
2018 Apr	1,250	5	5.8	2023	11.21	5.41
2018 Apr	1,250	10	6.8	2028	11.21	4.41
2019 Mar	1,000	5	6.9	2024	12.23	5.33
2019 Mar	1,400	10	7.9	2029	12.23	4.33
2019 Jun	500	5	6.4	2024	11.45	5.05
2019 Jun	1,500	10	7.6	2029	11.45	3.85

Source: CBSL

In the scenario, that the average ISB rate (**6.6%**) was compared against the local AWPR today (**20%**) ~ The cost of local funding would be approx. **13.4%** higher than foreign funding, which is an indication of the premium TPTL would incur by opting for local funding methods.

7.3. International Debt Market

There have been significant advancements in port infrastructure in South and Southeast Asia. These developments aim to alleviate congestion in major ports and utilize the region's natural sea depth for handling larger vessels. However, such port projects require substantial funding, often obtained from various sources:

1. Government Investment: Governments invest in port development based on the trade potential in the region. An example is the Vandhavan Port in Maharashtra, funded by the Government of India and Maharashtra Maritime Board.

2. **Foreign Government Investment:** Foreign governments invest in ports to secure strategic maritime routes, gain logistical information, and enhance bilateral relationships. For instance, India's investments in Chabahar port in Iran, Sittwe port in Myanmar, and the development of Chattogram and Mongla ports in Bangladesh.
3. **International Agencies and Private Players:** International agencies and private companies in the maritime industry invest in foreign ports to leverage trade advantages or focus on neighboring nation development. Examples include JICA's investment in the Patimban port of Indonesia, ADB funding for the Jawaharlal Nehru Port Container Terminal, and Adani Ports' investment in Haifa port, Israel.

Considering TPTL's circumstances, leasing terminals rather than investing in tank development appears to be the preference of potential customers. Given Sri Lanka's economic situation, it may not be feasible for the government to provide funding. Therefore, the most viable options for TPTL would be approaching international agencies or seeking investment from foreign governments.

7.3.1. Financing through SASEC

A viable option for TPTL to obtain financing is via the **South Asia Subregional Economic Cooperation (SASEC)**. This is a sub-segment of ADB that provides financing for infrastructure development projects such as TPTL. SASEC is a program that brings together the South Asian countries of Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, and Sri Lanka in a project-based partnership that aims to promote regional prosperity, improve economic opportunities, and build a better quality of life for the people of the subregion.

As of February 2023, SASEC member countries have implemented 79 ADB- financed projects worth around USD 18.41 Bn in their 4 main sectors

1. Transport – 46 Projects worth over USD 13 Bn
2. Energy – 16 projects worth over USD 2.9 Bn
3. Economic corridor development – 8 projects worth over USD 1.9 Bn
4. Trade Facilitation – 5 projects worth around USD 328 Mn

An elaboration of SASEC's key objectives as per their operational plan (2016-2025) are as follows:

1. **Transport** - Enhancing physical connectivity through multimodal transport systems that are aligned more closely with the development of markets
2. **Energy** - Enhancing electricity trade and expanding and diversifying energy supply to meet energy needs and secure power reliability (Mainly renewable energy - hence would not capture TPTL)
3. **Trade Facilitation** - Following a comprehensive approach to transport and trade facilitation that will expand the current focus to include seaborne facilitation, to complement investments in multimodal networks
4. **Economic corridor development** – Promoting synergies between economic corridors being developed in individual SASEC countries and optimizing development impacts of economic corridor investments through improved cross-border links

TPTL's development is in line with SASEC's objectives, especially **Transport and Trade Facilitation**, hence may be added to SASEC's list of potential projects to be implemented during 2016-2025.

Table 22 - TPTL's Alignment with SASEC's Objectives

Objective	In Line with TPTL	
	✓	X
Transport		
Road Transport: The aim is to upgrade and expand the road network along major trade routes, with measures covering (i) upgrade of key routes to Asian Highway Class I standards, (ii) upgrade of road links to primary SASEC routes and key borders, and (iii) upgrade of access roads to borders and ports to address "last mile" connectivity		X
Railway: The aim is to improve connectivity, focusing on (i) enhanced railway connections between Bangladesh and India, (ii) improved connectivity with landlocked countries and the northeast region of India and to seaports, and (iii) enhanced connectivity between ports and their hinterlands		X
Maritime Transport: The focus is on (i) developing deep-water ports for larger, deeper drafted vessels, and (ii) reducing port dwell times by augmenting port operating efficiency and enhancing container handling equipment in ports	✓	
Inland Waterways: The objective is to promote coastal shipping and inland water transport to handle international trade	✓	
Airports: The aim is to expand capacity to handle both passenger and airfreight traffic, as a result of growth in tourism and global value chains		X
Trade Facilitation		
Simplify trade documentation, increase automation, and expedite border clearance procedures to facilitate the movement of goods and vehicles: Priority will be given to reduce the overall number of trade documents, apply advanced procedures and practices based on international standards/conventions, and the use of advanced customs information technology (IT) systems to improve trade efficiency		X
Promote automation in border agencies and facilitate development of national single windows (NSWs): The focus is on promoting automation in border agencies (to enable them to progressively link into an NSW), and in developing an NSW		X
Strengthen national conformance bodies and develop infrastructure and facilities in sanitary and phytosanitary-related and other border agencies: This will help the countries to trade more efficiently in goods subject to sanitary and phytosanitary–technical barriers to trade measures and improve their access to markets in the region and globally		X

Objective	In Line with TPTL	
	✓	X
Develop and implement through-transport motor vehicles agreements: This will aid the seamless movement of cargo and people in the region and reduce the levels of border transshipment		X
Develop trade-related infrastructure in SASEC ports, land border crossings, and bonded logistics facilities adjacent to land borders and major centres of trade: The development of such infrastructure would improve process efficiency and regulatory effectiveness	✓	
Build capacity and enhance cooperation and coordination mechanisms among stakeholders in trade facilitation	✓	

It is also prudent to consider similar SASEC projects which fall under the objectives of Transport and Trade Facilitation. SASEC has financed 46 Transport Projects worth over USD 13 billion, and 5 Trade Facilitation projects worth around USD 328 million.

Table 23 - Summary of Similar SASEC Financed Projects

	Project/Entity	Sector	Year	Value (USD million)	Type of Instrument	Funding Source
1.	Bangladesh: Chittagong Port Trade Facilitation Project	Transport/Ports	2005	41	Loan	ADB, Government of Bangladesh
2.	Sri Lanka: National Port Master Plan	Transport/Ports	2016	2	Technical Assistance	Japan Fund for Poverty Reduction (JFPR), Government of Sri Lanka
3.	India: Strengthening Multimodal and Integrated Logistics Ecosystem Program	Transport	2022	350	Loan	Kexim, ADB
4.	Bangladesh: South Asia Subregional Economic Cooperation Integrated Trade Facilitation Sector Development Program	Trade Facilitation	2022	151	Loan	Asian Development Fund, Government of Bangladesh
5.	Maldives: South Asia Subregional Economic Cooperation National Single Window Project	Trade Facilitation	2019	12	Loan/Grant	Asian Development Fund, Government of Maldives

7.3.2. Funding Options for International Financing

1. Revenue Bonds

This is a type of bond in which the repayment of an obligation is primarily carried out by **utilizing the operating revenues of an entity**. In this scenario, TPTL will use only the revenues generated by the project to repay the bond. This would mean that a portion of revenue from the project will be pledged to the facility provider to facilitate timely interest and capital repayments.

Revenue bonds are not issued by local banks and would also be the first time such a bond is used to finance a local project.

2. Convertible Loans

This is a financing method that comes in the form of a loan which comes with the option of being converted into equity at a future date. Shares of the entity will act as collateral and in the event of non-payment of the loan, equity will be given up.

Several **Middle Eastern Sovereign Funds** have been open to providing this facility. A few potential names are as follows:

Table 24 - Middle Eastern Sovereign Funds

	Name	Description
1.	Mubadala	Mubadala is an Emirati state-owned holding company that acts as a sovereign wealth fund managing a global portfolio of assets valued at USD 284 Bn
2.	Abu Dhabi Investment Authority (ADIA)	The Abu Dhabi Investment Authority is a sovereign wealth fund owned by the Emirate of Abu Dhabi founded for the purpose of investing funds on behalf of the Government of the Emirate of Abu Dhabi. It manages the Emirate's excess oil reserves and is estimated to manage USD 790 Bn worth of assets.
3.	Abu Dhabi Investment Council	The Abu Dhabi Investment Council (ADIC) is a sovereign wealth fund owned by the government of Abu Dhabi that is responsible for investing the government's financial resources
4.	Qatar Investment Authority	The Qatar Investment Authority is Qatar's sovereign wealth fund. They possess investments spanning all major global markets, asset classes, sectors and geographies.
5.	Public Investment Fund	The Public Investment Fund is the sovereign wealth fund of Saudi Arabia, and is among the largest sovereign wealth funds in the world with total estimated assets of USD 620 Bn

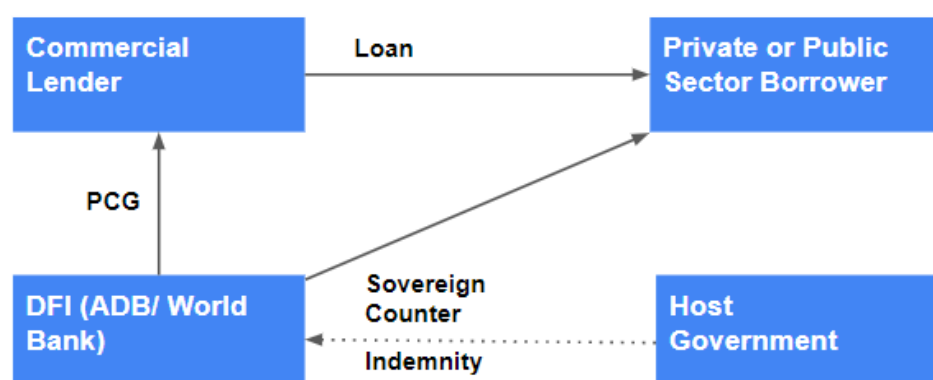
3. Partial Credit Guarantees and Partial Risk Guarantees

Partial Credit Guarantees (PCGs) and Partial Risk Guarantees (PRGs) are issued by Development Financial Institutions (DFIs) such as ADB/WB, to enhance access to project financing. These cover private lenders, or against the risk of a government (or government-owned entity) failing to perform its contractual obligations with respect to a private project.

Though applicability and selection criteria may change on the issuing entity, these facilities can be used for any commercial debt instruments (loans, bonds) provided by any private institution, including debt provided by sponsors in the form of shareholder loans. These guarantees can cover both foreign currency and local currency debt.

- In 2000 ADB provided a USD 52 Mn Partial Risk Guarantee (PRG) to 163 Mw AES Kelanitissa Thermal power project. Australia and New Zealand Banking Group (ANZ) co-financed the project with a loan of USD 52 Mn. In addition to the PRG, ADB provided a USD 26 Mn loan to the project (with a tenor of 12 years including a grace period of 3 years). The PRG enabled additional private financial resources to become available for plant construction and operations

Figure 9 - High Level Structure of Partial Credit Guarantees



Source: Asian Development Bank

Estimated Cost of Guarantees

- Initiation Fee: one-time fee of 0.15% on the amount of the guarantee or a minimum of USD 100,000
- Processing Fee: one-time fee of up to 0.5% on the amount of the guarantee, to cover the cost of out-of-pocket expenses
- Guarantee Fee: 0.75% per annum on the disbursed and outstanding guarantee amount

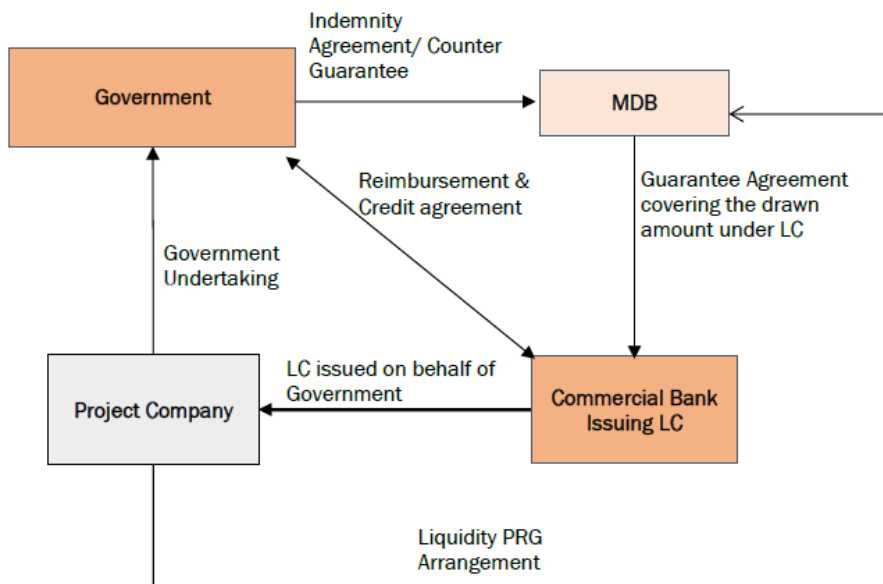
Liquidity / Payment Guarantee

It protects project company from liquidity risks for a certain time period (example 3 to 6 months) by covering revenue payments from off-taker (for example, Liquidity PRG offered by IDA).

A slight variation to this structure is the LC based liquidity PRG. This has an additional layer in the form of a LC bank, which results in better responsiveness to the project, thereby fulfilling the basic objective of the structure – to cover the short-term liquidity risk.

A counter guarantee / indemnity agreement with the host government is usually required.

Figure 10 - High Level Structure of a Liquidity PRG Agreement



Source: Asian Development Bank

- Revenues of the Project Company are secured for short term risks under this guarantee structure
- In case the off-taker (Government) defaults on the revenue payments to project company
 - The project company draws the LC from the issuing bank
 - If the Government defaults on the reimbursement / replenishment of the LC amount to the issuing bank, the bank calls the MDB guarantee to cover for non-payment of LC

Case Studies for PRG

1. Bujagali Hydro Power, Uganda (100% Debt Coverage + 90% Equity coverage)
 - Bujagali hydro power plant accounted for 67% of total private investment in Uganda between 2003-2012 (World Bank, 2014)
 - Key risks in Uganda were identified as – off-taker’s credit rating, country’s lack of track record with private investment, country’s credit rating and currency depreciation
 - PRI (MIGA) was used to cover currency depreciation & political risks (90% equity (up to USD 120 million) by Sithe Global was covered)
 - PRG (IDA) was used to cover off-taker risk and enabled commercial lenders to commit financing (covering principal and interest payments of entire commercial loan of USD 115 million)
2. Kribi Power Project, Cameroon (Partial coverage of debt and equity)
 - Kribi Power Development Corporation, KPDC (project company) owned by AES Corp. and government, started Kribi power plant in 2013
 - Key risks in Cameroon were identified as - high corruption, political uncertainty, low investment climate, contractual default by government

- IFC enabled access to local financing (it provided a loan of USD 86 million and acted as a lead arranger for debt of USD 182 million)
- PRG was issued by World bank to extend tenors for their USD 84 million financing, covering off-taker risk (including some government obligations arising out of termination risk)
- MIGA guarantee of USD 78.2 million covered BOC & political risks supporting the equity of Globeleq Energy Holdings (Cameroon) against breach of contract

Sources: ADB, World Bank

Green Finance (For Solar Plant Development)

Green Bond pricing in the primary market would depend on several macroeconomic factors and global market dynamics.

Considering various factors like **Issuer ratings, Sovereign rating and Other macroeconomic parameters**, the pricing (coupon rate) can be in the range of 6% to 7%[^]

[^] sustainable finance instruments are priced ~ 10-70 basis points lower than traditional ones, depending structure of the issue.

Table 25 - Global Green Bond Issuances

Country	Issuer	Currency	Issuer's Credit rating	Issuer's Sovereign rating	Bond Size (USD Mn)	Coupon rate (%)	Tenor (Years)
Philippines	Bank of the Philippine Islands	USD	AA-	BBB	300	2.50%	5
Mauritius	Clean Renewable Power (Mauritius) Pte. Ltd	USD	BB-	Baa2	363	4.25%	6
India	INR denominated - IREDA	INR	AA+	BBB-	267	7.13%	5
Indonesia	PERUSAHAAN PENERBIT SBSN INDONESIA III	USD	BBB-	BBB	1250	3.75%	5
India	Renew Power	USD	BB-	BBB-	450	5.88%	7
India	State Bank of India	USD	AAA	BBB-	650	4.50%	5
Australia	QBE Insurance Company Limited	USD	A+	AAA	300	3.00%	5

Sources: ADB, World Bank

Table 26 - Regional Green Finance Issuances

Issuers	Sector	Issue size (USD Mn)	Currency	Coupon rate (%)	Tenor (Years)	Type of instrument	Exchange
Adani Green	Renewable	750	US\$	4.38%	3	Green bonds	INX (India)
Adani Power Mumbai	Power distribution	300	US\$	3.87%	10	SLB^	INX (India)
ReNew Power	Renewable	585	US\$	4.50%	7.25	Green bonds	INX (India)
Greenko	Renewable	940	US\$	3.85%	5	Green bonds	SGX (Singapore)
JSW Hydro	Hydro Power	707	US\$	4.13%	10	Green bonds	SGX (Singapore)
Hero Future Energies (HFE)	Renewable	363	US\$	4.25%	6	Green bonds	
Delhi International Airport Limited (DIAL)	Airport	450	US\$	6.25%	4.7	Green bonds	SGX (Singapore)
Sriram Transport Finance	Finance	500	US\$	4.40%	4	Social Bonds	SGX (Singapore)
Ultratech	Cement	400	US\$	2.80%	10	SLB^	SGX (Singapore)
Vector Green	Renewable	161	INR	6.49%	3	Green bonds	Private listing in India
Sajida Foundation, Bangladesh	NGO (health, credit)	11.7	US\$	Currently Ongoing		Green bonds	

Sources: ADB, World Bank

^SLB - Sustainability Linked Bond

8. Potential Incentives for TPTL

8.1. Incentives under BOI Law

We understand that **TPTL has already been approved as a Board of Investment (BOI) registered company**. While there are specific exemptions under the BOI law that can be obtained by TPTL (i.e., Customs Duty, CESS, PAL, VAT) there are generic exemptions that will be facilitated via the BOI (i.e. Corporate income tax, Enhanced capital allowance).

The BOI which is established under BOI Law No.4 of 1978 is empowered to approve projects and enter into agreements with enterprises granting exemptions from laws, subject to fulfillment of the investment threshold or any other specified requirement.

Section 17 of the BOI law outlines projects that meet the minimum investment threshold of USD 3 Mn upwards, can enjoy special incentives in the form of enhanced capital allowances under the Inland Revenue Act No 24 of 2017. Projects with investments of over USD 50 Mn will be granted Port and Airport Levy (PAL) and CESS exemptions during the Project implementation period.²

Enactments from which exemptions may be granted under a BOI agreement:

- The Inland Revenue Act, No. 24 of 2017
- The Customs Ordinance (Chapter 235)
- The Foreign Exchange Act, No. 12 of 2017
- The Companies Act No. 7 of 2007
- The Merchant Shipping Act No.52 of 1971
- The Finance Act, No. 65 of 1961
- Part XII of the Finance Act, No. 11 of 1963
- The Air Navigation Act (Chapter 365)
- The National Film Corporation of Sri Lanka Act, No. 47 of 1971

Note: We have not considered these exemptions in our financial forecast, since all these exemptions are subject to several approvals from relevant authorities.

Corporate Income Tax (CIT)

CIT will be exempt for the export of services, while the export of goods will be charged at the prevailing rate of 30%

² BOI Investment Guide. <https://investsrilanka.com/wp-content/uploads/2022/04/Investment-Guide-2022-31.03.2022.pdf>

Table 27 CIT Concessions

Basis	Concessionary rate
Export of goods	30 %
Export of Services	Exempt

Source: BOI Investment Guide

As per Item (iii) and (iv) of the Third Schedule of The Inland Revenue Act, No. 24 of 2017 CIT will be exempt for:

- 1. The export of services** – Any service rendered in or outside Sri Lanka, to any person, to be utilized outside Sri Lanka where the payment for such services is received in foreign currency and remitted through a bank to Sri Lanka
- 2. Foreign sourced income** – Any foreign sourced income earned or derived in foreign currency and remitted through a bank to Sri Lanka

TPTL's terminal operations would potentially not fall under 1, as services will be utilized in Sri Lanka and not outside Sri Lanka as per the act. However, TPTL has a case for the envisaged terminal operation business being exempt from CIT under option 2 above. In the scenario TPTL enters the bunkering business (export of goods) CIT will be charged at the prevailing rate of 30%

Enhanced Capital Allowance (ECA)

ECA are granted to an individual or entity in addition to the normal depreciation allowance, as given in the below table. This concession is available for those who make new investments or expansions of existing projects in Sri Lanka.

Table 28 ECA Concessions

Total Investment (USD Mn)	Enhanced Capital Allowance (ECA)		Period for deducting unrelieved losses (Years)
	Northern Province	Other than Northern Province	
> 3 ≤ 100	200%	100%	10
>100 ≤ 1,000	200%	150%	10
> 1,000	200%	150%	25

Source: BOI Investment Guide

Exemption of income tax on employment income of expatriates during the ECA:

During the period covered by the ECA, the employment of income of the company's **expatriate employees** is entitled to a 0% income tax rate, where:

- The company incurred more than USD 250 Mn on depreciable assets in Sri Lanka, for the period in which that payment is made, out of the profits sheltered by the ECA allowance, or for 5 years from the commencement of commercial operations, whichever is higher.

Table 29 Customs duty, Port & Airport Levy (PAL) and CESS Concessions for Export Oriented Enterprises

Type of Tax	Capital Goods	Raw Materials
Customs Duty	Exempted for capital goods (Plant, Machinery and Equipment) for the lifetime of the project and construction items during the project implementation period	Exempted for lifetime of the project
PAL	Exempted for capital goods (Plant, Machinery and Equipment) for the lifetime of the project and construction items during the project implementation period for enterprises with a capital investment not less than USD 50 Mn.	Exempted for lifetime of the project
CESS	Exempted for capital goods (Plant, Machinery and Equipment) for the lifetime of the project and construction items during the project implementation period for enterprises with USD 50 Mn or above investment	Exempted for lifetime of the project

Source: BOI Investment Guide

Table 30 Value Added Tax (VAT) Concessions for Export Oriented Enterprises

Within Export Processing Zones (EPZs)	Outside EPZs (For TPTL)
VAT Exempted for capital goods	VAT deferred for capital goods (plant, machinery, equipment and construction items) – During the project implementation period
	VAT further deferred for plant, machinery and equipment for lifetime of the project

Source: BOI Investment Guide

8.2. Strategic Development Projects Act - 14/2008

TPTL has the potential to be classified as a **Strategic Development Project (SDP)** under the Strategic Development Projects act No. 14 of 2008, given its potential contribution to the economic landscape of the country. The BOI of Sri Lanka will identify in consultation with the relevant line Ministries, any proposed project as a Strategic Development Project.

The most recent project that has received the SDP status was HCL Technologies for the export of IT services in January 2022. It's important to note that **the parliament has curtailed the vesting of SDP status to projects after the economic crisis.**

Criteria to be classified as an SDP project are³;

1. Has be a project of national interest
2. Has to bring economic and social benefit to the country
3. Is likely to change the landscape of the country, primarily through:
 - The strategic importance attached to the proposed provision of goods and services, which will be of benefit to the public
 - The substantial inflow of foreign exchange to the country
 - The substantial employment which will be generated and the enhancement of income earning opportunities
 - The envisaged transformation in terms of technology

SDP status can exempt the company (either in full or part) from the following enactments;

- The Inland Revenue Act, No. 24 of 2017
- The Value Added Tax Act, No. 14 of 2002
- Ports and Airports Development Levy Act, No. 18 of 2011
- Customs Ordinance (Chapter 235)
- Sri Lanka Export Development Act, No. 40 of 1979
- The Excise (Special Provision) Act, No. 13 of 1989
- The Betting and Gaming Levy Act, No. 40 of 1988

The period of exemption granted in terms of the above enactments will in no event **exceed a period of 25 years**. In order to obtain the SDP status, a project must first be identified by the BOI as a SDP in consultation with the relevant line ministry. Subsequently, the Minister in charge of the subject of investment must publish a government gazette with relevant information relating to each proposed project. The cabinet of ministers must

³ BOI Legal Brochure. https://investsrilanka.com/wp-content/uploads/2020/12/legal_brochure_new.pdf

be informed on the rationale for considering a project as a SDP and the period of exemption proposed to be granted.⁴

- During 2016, the government imposed restrictions on the SDP, limiting the law only to be applicable for projects which received approval prior to 2016 – SDP was not repealed but put to limited use administratively. In January 2020 however, cabinet approval was granted once again to fully implement SDP for new projects identified as Strategic Developments of the country.

Following tax concessions would be granted under SDP;

Table 31 - General Concessions Granted under SDP Act

Type of Tax	
Corporate Income Tax	Exempt for a select number of years (Subject to screening of the project)
VAT – On imports	The importation of project related goods and services and the local purchases of project related goods and services exempted.
Personal Income Tax	Dividends received by shareholders are exempted for a select number of years A select number of expatriate staff will be exempt from PAYE for a select number of years Exempt from the payment of Withholding Tax on interest on foreign loans for capital expenditure, technical fees to consultants and on management fees, royalty payments, and marketing fees.
Customs duty	Customs Duty exemption for import of all project related items including capital items, construction items, raw materials and production-related consumables as approved by the BOI, for the lifetime of the project - excluding the items in the negative list published by the Secretary to the Treasury.
PAL	Exempt from the payment and charge of PAL on all capital items imported during the project implementation period and raw material as referred to in the PAL Act.

The time period for each of the above exemptions to be granted will be subject to cabinet approval and varies based on each project. A list of a few SDPs in the country infers the scope of concessions granted for such similar projects.

⁴ Strategic Development Projects Act, No. 14 of 2008. <https://www.treasury.gov.lk/api/file/5e8bf60c-579c-49e3-8f2c-1eca07b20f71>

Table 32 - Summary of Projects with SDP Status

Year	Project	Tax	Concession Granted
April 2011	Build a Luxury Hotel as a Mixed-Use Complex including High Quality Residencies and a High- End Shopping Mall, in Colombo. (Shangri La Hotel & One Galle Face Shopping Mall)	Corporate Income Tax	A 10 year corporate income tax holiday commencing from either the first year in which the Company makes a taxable profit or three (03) years after commencement of commercial operations, whichever falls first and subsequently a concessionary rate of 6% for 15 years.
		Personal Income Tax	Dividends received by shareholders are exempted for 10 years. A maximum of 20 Expatriate staff members are exempted from PAYE for 5 years. The company shall be exempted from the payment of Withholding Tax on interest on foreign loans for capital expenditure, technical fees to consultants and on management fees, royalty payments, and marketing fees.
		PAL	Exempted during the project construction period.
		Customs Ordinance	Exempt for the importation of project-related goods and the local purchases of project-related goods and services during the project Construction period.
		VAT	Excluded for the importation of project-related goods and the local purchases of project-related goods and services during the project Construction period.
January 2014	Development of Colombo Port City	Corporate Income Tax	A 25 year tax exemption period will commence from either the first year in which

the Project Company makes a taxable profit or from 06 years after commencement of commercial operations, whichever falls first.

Dividends received by shareholders are exempted for 25 years.

A maximum of 30 Expatriate staff members are exempted from PAYE for 10 years.

Personal Income
Tax

The Company shall be exempted from the payment of Withholding Tax on interest on foreign loans for capital expenditure, technical fees to consultants and on management fees, royalty payments, and marketing fees.

PAL

Exempted during the project implementation period of 8 years

Customs
Ordinance

All project related items in capital nature will be exempted during the project implementation period of 08 years.

VAT

The importation of project related goods and services and the local purchases of project related goods and services during the Project Implementation Period of eight (08) years shall be exempted.

Finance Act No 5
of 2005

Exempted from the payment of Construction Industry Guarantee Fund Levy to the contractor/s and subcontractor's of the Project Company

Excise Duty

Import of project related items as approved by the Board of Investment of Sri Lanka shall be exempted during the project implementation period of eight (08) years

CESS

Import of project related items as approved by the Board of Investment of Sri Lanka shall be exempted during the project implementation period of eight (08) years

July 2021	Development and Operation of West Container Terminal- 1 project under the Colombo Port Expansion project.	Corporate Income Tax	A 25 year tax exemption period will commence from either the first year in which the Project Company makes taxable profit or from 02 years after commencement of commercial operations, whichever falls first.
		Personal Income Tax	Dividends received by shareholders will be exempted for 25 years plus one year. A maximum of 20 Expatriate staff members are exempted from PAYE for 05 years. The Company shall be exempted from the payment of Withholding Tax on interest on foreign loans taken for capital expenditure and on technical fees paid to consultants employed in the project.
		PAL	Exempted during the project implementation period of 5 years
		Customs Ordinance	Applicable to all project related items in capital nature and any other project related items as at within the project implementation period of 05 years.
		VAT	The importation of project related goods and services and the local purchases of project related goods and services during the Project Implementation Period of 05 years shall be exempted.
January 2022	To provide Information Technology enabled services for export by HCL Technologies Lanka (Private) Limited and to provide technically qualified IT employment opportunities for 5,325 locals by 2032.	Corporate Income Tax	Tax exemption period of 12 years , followed by a concessionary rate of the 50% of the prevailing Corporate Income Tax for a period of 5 years
		Personal Income Tax	Dividends received by shareholders will be exempted for 12 years plus one year. A maximum of 20 expatriate staff members are exempted from PAYE for 05 years.
		PAL	All project related items imported during the 12-year period will be exempted from PAL

Customs Ordinance	All project related items imported during the 12-year period will be exempted
VAT	Exempted from the payment and charge of Value Added Tax (VAT) and its amendments for the importation of all project related items required for the implementation of the project as approved by the BOI for a period of twelve (12) years to the further condition that more than ninety per centum (90%) of income from services are received in convertible foreign currency.

Source: Public Finance.LK

8.3. BOI Registration Process

The BOI registration process usually takes 3-4 months if the project is declared a SDP. SDP status must be approved by the Cabinet of Ministers and gazetted, for which the timeline cannot be estimated. However, it is likely it would be expedited

The BOI registration process can be charted as follows:

1. **Application for BOI approvals** - BOI Application form with documentary evidence will include particulars of investors, type of project, concept paper, marketing program, investment and implementation schedule, proposed financing, foreign and local manpower requirements. Application should be submitted along with the processing fee and will be screened by the Project Screening Committee and the Land Committee.

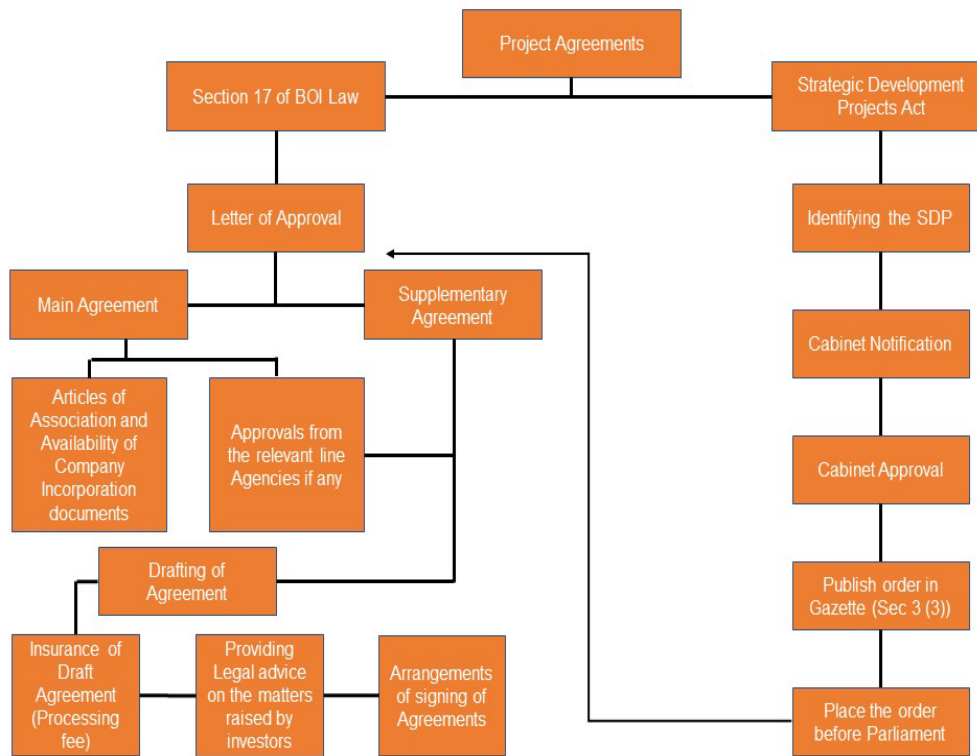
BOI approvals can be processed in 2-3 weeks

2. **Letter of Acknowledgement of Business Activity** – Letter issued by the Appraisal Department of the BOI is granted when approved by Project steering committee including in principal clearance of environmental and engineering aspects. The environmental clearance is required from the Central Environmental Authority (CEA)

3. Incorporation of Company by the Department of Registrar of Companies

4. Formal Letter of Approval and Signing of Agreement

Figure 11 BOI and SDP Approval Process



Source: BOI Legal Brochure

9. Wind Energy Potential for TPTL

Potential land mass

- Of the total land mass available in Trincomalee, 202 ha has the potential for wind power development. But as identified by Sri Lanka Sustainable Energy Authority, the identified areas are near Sampur.
- The estimated total capacity of the plant can be ~16 MW with total energy output as 68 GWh/annum.

Profile of wind in vicinity of TPTL tank farm

Data for 10% windiest area at 100m

- Wind Speed - 7.2 m/s
- Power Density- 426 W/sq.m

Estimated investments

- To understand the investment required for the wind farm in Sri Lanka, we can refer to Mannar 100 MW wind farm, built up on a land of 260 acres as TPTL possesses similar size of land.
- The minimum investment required for the project was ~USD 150 Mn. The farm is operated by CEB.
- Several incentives such as 0% taxes and duty on imported project related items during the implementation period, Dividends to non-resident entities are exempt from income and withholding taxes etc.

Timeline

- For a wind farm project of 100 MW, the total duration from site identification to initiation of commercial operation would be nearly 5 years.

Figure 12. Mean Wind Speed Map

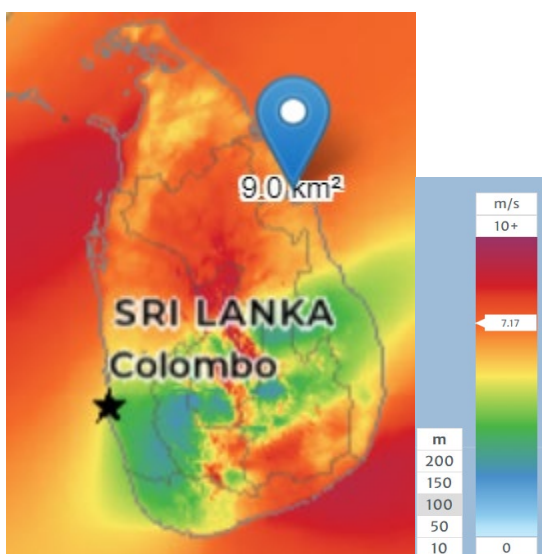
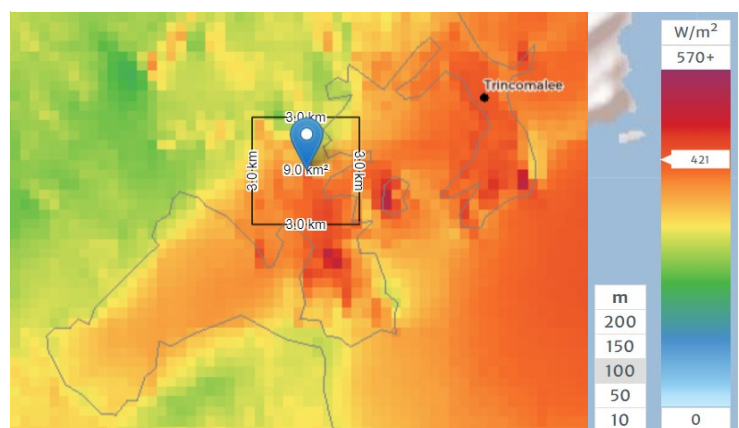


Figure 13. Mean Power Density Map



10. Appendix

10.1. List of abbreviations

Abbreviation	Definition
ADB	Asian Development Bank
AWPR	Average Weighted Prime Lending Rate
BESS	Battery Energy Storage Systems
CAGR	Compound annual growth rate
CCD	Coast Conservation Department
CEA	Central Environment Authority of Sri Lanka
CEB	Ceylon Electricity Board
CPC	Ceylon Petroleum Corporation
CY	Calendar Year
DFI	Development Financial Institutions
EBIDTA	Earnings before interest, taxes, depreciation & amortization
ECI	East Coast India
EPC	Engineering, Procurement and Construction
FDI	Foreign Direct Investment
GHG	Greenhouse Gas
GoSL	Government of Sri Lanka
GWh	Gigawatt-hour
HDPE	High Density Polyethylene
IDA	International Development Association
IFC	International Finance Corporation
IFO	Intermediate fuel oil
IRR	Internal Rate of Return
ISB	International Sovereign Bonds
JCT	Jaya Container Terminal
JVC	Joint Venture Company
KPDC	Kribi Power Development Corporation
KWh	Kilowatt-hour
LC	Letter of Credit
LIOC	Lanka IOC PLC
LKR	Sri Lankan Rupee
LNG	Liquified Natural Gas
LTF	Lower Tank Farm
MIGA	Multilateral Investment Guarantee Agency

Abbreviation	Definition
MT	Metric Tonnes
MTBE	Methyl tert-butyl ether
MW	Mega-Watt
NCRE	Non-Conventional Renewable Energy
NCRE	Non-Conventional Renewable Energy
PAT	Profit after Taxes
PCG	Partial Credit Guarantees
PPP	Public Private Partnerships
PRG	Partial Risk Guarantee
PSPP	Pumped Storage Power Plant
SASEC	South Asia Subregional Economic Cooperation
SBM	Single Buoy Mooring
SEA	South East Asia
SLSEA	Sri Lanka Sustainable Energy Authority
USD	U.S. Dollar
UTF	Upper Tank Farm

10.2. Assumptions for the Financial Evaluation of the Project

Assumptions for Tank Additions

	Year 0	Year 3	Year 4	Year 5	Year 6	Year 7
Tank Additions	9	14	8	8	7	14
Total Tanks	9	23	31	39	46	60
Phase	Phase 01	Phase 02	Phase 03	Phase 04	Phase 05	Phase 06

Assumptions for CAPEX

- The Capex requirement under this model assumes that Phase 1 of the project (initial nine tanks) is already executed as per the 'Short-term Strategy Report'. This section will be a continuation from Year 3 onwards where refurbishment and operations of the remaining 51 tanks are to be considered
- Condition of the remaining 51 tanks are considered as same as the outcome of the health study of the 10 tanks that have been conducted already – similar tank refurbishment estimates considered
- Additional costs considered for the installation of fire extinguishing infrastructure for new tank farm area. The trestle and related development and chemical laboratory infrastructure costs are assumed to be incurred in Phase 1 of the project, and to be utilized for this phase as well.
- Overall contingency cost of 10% estimated to capture all installation activities and additional equipment requirements.

- During each phase, the capex considered for Year 0 is expected to increase by 3% per year to account for the increasing general price levels during the project period.
- Pipeline connectivity is considered for each tank based on the estimated distance received from the client and the basic understanding of the geographic layout of the land.

Estimates of Pipeline Distance

Pipeline Distance (km)	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Distance between the two tank clusters ¹	1.0	1.0	1.0	1.0	1.0
Inter-tank distance among the tanks ²	1.7	1.0	1.0	0.8	1.7
Additional provision of 20% ³	0.5	0.4	0.4	0.4	0.5

Note: 1. Two-way pipelines considered among clusters – relatively high distance considered to factor elevation variations, 2. Pipelines considered for four sides of a single tank, 3. Contingency provision to factor additional pipe laying requirements

Assumptions for Revenue

TPTL's operational revenue will largely be dependent on the success of the market share achievement in both terminal operations. High-level analysis conducted to identify the total market potential for both business operations – **these estimates may vary based on the market positioning to be carried out by TPTL** and the extent of marketing activities to be conducted.

- In assuming the market share of terminal operations, bulk tankers carrying liquid fuel in the East Coast India (ECI) region are taken into consideration. For the purpose of our analysis, it is assumed that TPTL will capture 5% of the ECI market share from the commencement of operations in Phase 2. The market share capture is expected to be driven by additional demand created mainly owing to expansion from Phase 1 operations.
 - An assumption was made to have the maximum market share attraction by TPTL to be ~25% by Year 20 for the implementation of Phase 2 – Phase 6 operations. The total terminal market potential is expected to grow by only 2% per annum throughout the evaluation period of 12 years. However, a **conservative assumption of only ~8 refills per tank per year is considered** under the financial evaluation (i.e., every 45 days), indicating a further opportunity to capture and expand the market share.
 - Only bulk tankers (carrying liquid fuel) are considered for a market share of terminal operation, and Crude oil tankers have been excluded from the market share calculation, as found less feasible with current infrastructure (i.e. port infrastructure to be substantially developed to accommodate large vessels that transport crude oil, non-existence of a refinery in close proximity, etc.)
 - Terminal operation can have more market potential for expansion (with a wide variety of specialized product offerings and establishment of innovative products/practices), but additional port infrastructure is required to be developed to accommodate the same. The current financial evaluation was conducted based on minimal infrastructure development in the tank farm, as well as the port infrastructure post the initial investment.

Table 33 - Initial Estimations of the Total Market Share – Terminal Operation

Terminal Operation	East India	Bangladesh	Myanmar
Bulk tankers [^]	195	22	0
Average vessel size (MT)	5,000		
Average requirement (MT)	975,000	110,000	0
Market demand per month (MT)	1,085,000		
Market demand per annum (MT)	13,020,000		

[^] Excluding Crude Oil tankers

Source: Volza Grow Global

- The terminal operation has two main revenue sources – 1. the storage income and 2. the pipeline and pumping income. Storage income is a fixed charge for renting out of the tank capacity, calculated for total tank capacity facilitated by TPTL. Additionally, the pipeline and pumping income is a variable charge based on the volumes handled by TPTL - this charge will vary based on the usage level of tanks.
 - As a **conservative assumption of only up to 80% of the total tank capacity is considered to be leased out on average** from Phase 02 stage– fixed storage income is calculated only for this capacity. Meanwhile, the pipeline and pumping income are calculated based on the total volumes expected to be handled per annum
 - **Competitive charges considered for storage income and the pipeline and pumping income considering the current charges at Indian ports and the port of Colombo.** Both charges are expected to have a moderate growth of 2% per annum, throughout the evaluation period
 - There's also the potential to obtain additional charges by providing services such as Nitrogen Blanketing and Heating for specific product requirements. However, such additional procedures will require a certain level of service excellence and capex investment, hence not considered for the financial analysis conducted

Assumptions for Cost

The main operational cost factor to be considered in terminal operations is the handling cost. Repair and maintenance costs, administration costs, and sales and marketing costs are the supplementary costs considered in the financial evaluation to reach EBITDA.

- Terminal operations will have a storage charge directly as an operating profit. Out-of-the-pipeline and pumping charge **net value of 40% is considered for operating profit in initial years, with an annual increase to reach a maximum of ~60% net value towards later operational years.** Both charges are estimated to grow at 2% per annum, throughout the evaluation period

- Repair and maintenance cost estimate of USD 25,000 per tank considered, taking into consideration the costs at LTF operations and factoring additional charges for improved operations (and for multiple usage) – annual repair and maintenance cost expected to grow at 3% per annum
- Administrative expenses are calculated based on a high-level estimation of key operational staff estimates. Each operational division of TPTL to be headed by a senior staff member and four junior staff members per division. Current financial projection was developed with the assumption that there will be certain staff members for all divisions be available in the Phase 01 of the project. We expect one senior staff member, along with four junior staff members to be added during each stage of tank additions (in order to factor the aspects of two shift operations and other operational requirements).
 - Terminal operations will require 4 senior staff and 16 junior staff members initially, under Phase 1 of the Project (Operation and Maintenance, Laboratory, Finance and Accounting and Human Resources and Admin divisions). New staff additions in Phase 2 to 6 will be dedicated to Operation and Maintenance division. **At phase 6 the total workforce will be totaling to 35 personnel.**
- Sales, marketing and other expenditure are calculated as a % of the annual revenue with relatively higher allocations being made from Year 5 - Year 10 (i.e. 5% of the annual revenue), while allocations are to be reduced by 1% each year until a baseline of 2% of revenue is expected to be maintained.
- Plant and equipment depreciated on reducing balance method, considering 5% annual depreciation (assuming a 20-year plant life).
- A 5-year accelerated capital allowance is applied to the project (given the investment value), while the corporate income tax rate is considered at 30%. Further, taxable losses can be carried forward in Sri Lanka for six years and the same has been taken into account to evaluate the feasibility of the Long-term strategy. In addition, **under the new investment promotion schemes, other tax allowance advantages can be reaped to increase the project viability and IRR**
- Constatative assumption made on the on **terminal cash flow of the project, assuming a constant cashflow beyond year 20** (future capex requirement assumed to be same as the annual depreciation). There's high potential for TPTL to achieve a growth in terminal cashflows via incorporation of industry best practices, efficient service delivery procedure and embedding an effective marketing process.