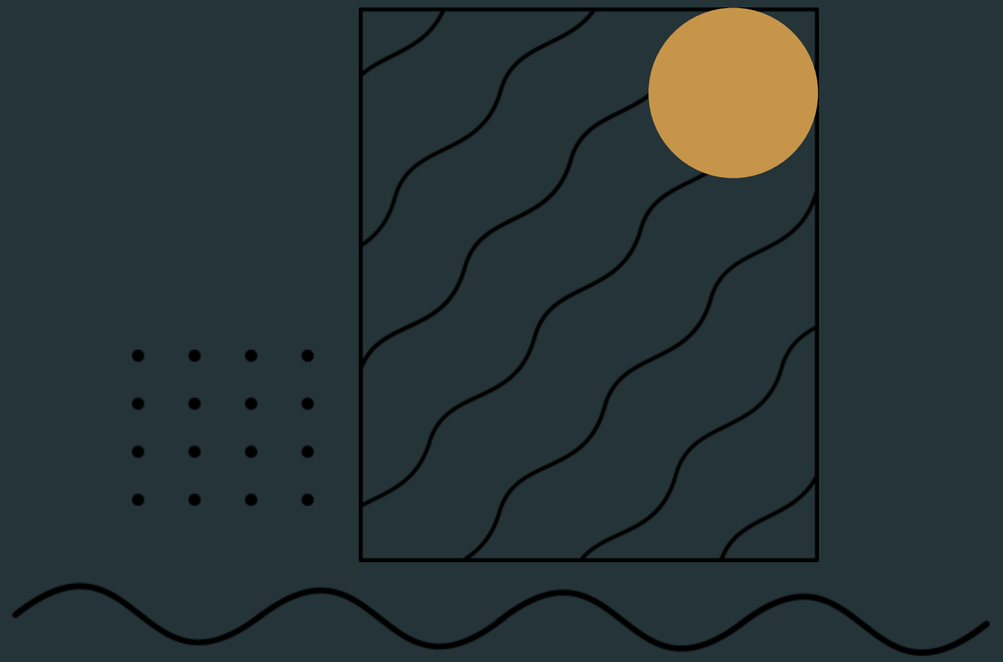
NTPC VIDYUT VYAPAR NIGAM'S BUSINESS PLAN

A wholly owned subsidiary of NTPC Limited



EXPANDING EXISTING BUSINESS MODEL

Domestic Power Trading

- Expanding bilateral business horizons (Through Long Term Contracts, Aggregations, Behind the Meter & Real Time Solutions)
- Tolling & Commercial assignments of Stranded Generating Assets
- Providing Commercial & Metering management solutions to GENCO's, Discoms, SEZs
- Asset set up in Andaman & Others

Cross Border Power Trading

- SNA Activities
- Import of Cheap Power

EV Business (Target 1000 Buses in 3 years)

- Andaman & other UTs
- States & Large Business Houses, Education Societies Etc.)

Internati onal Competitive biddings

Solar Businesses

Asset Acquisitions (RE Assets Hydro, Solar, Wind Etc.)

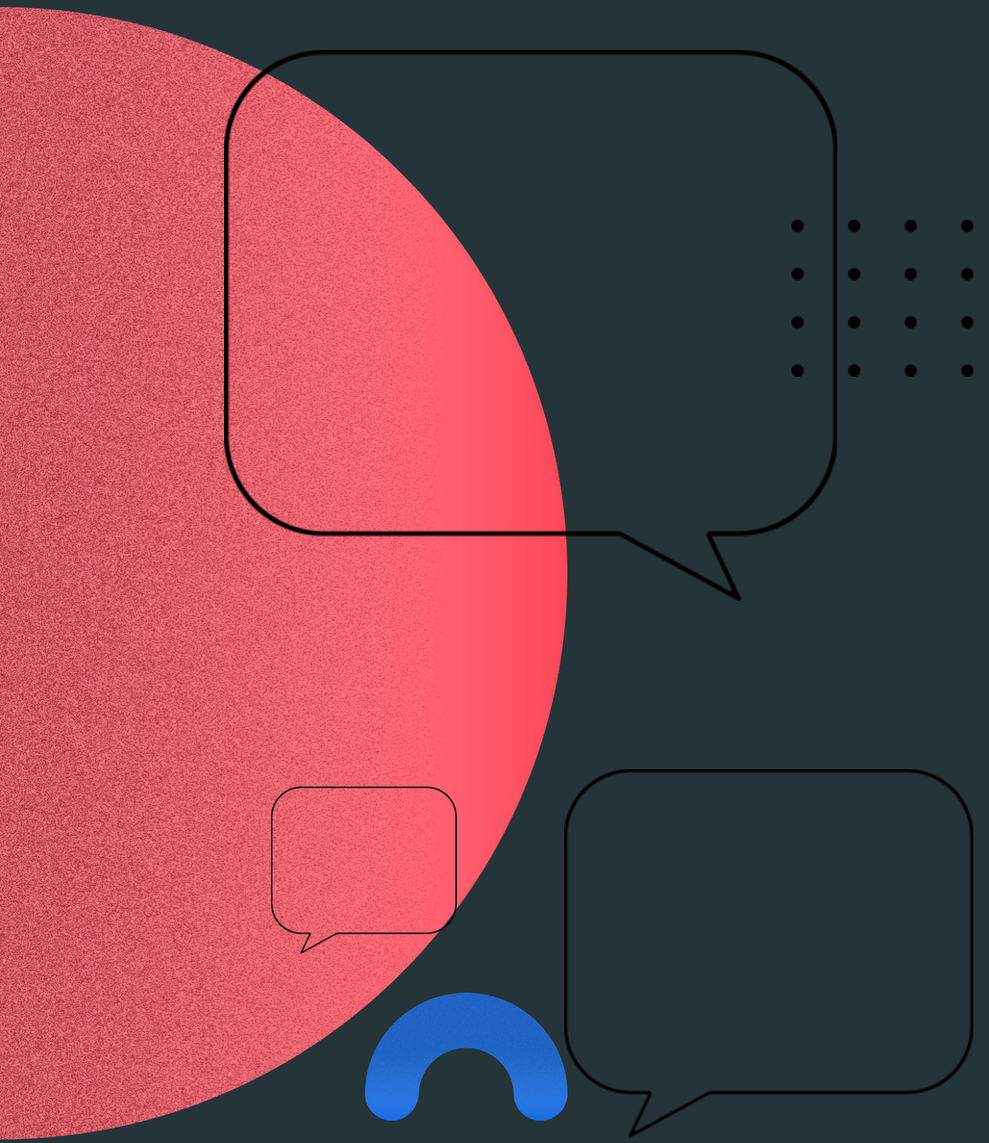
Consultancy (Port Folio Management)& Capacity Building measures

Pellet Plant Set Up (6 no's Punjab)

APPROACH TO BUSINESS PLAN.

LISTING TIMELINES

- Up to 3 years Horizon (Short Term)
- 3-10 years (Medium Term)
- Beyond 10 years (Long Term)



SHORT TERM (FY 2020 -23) View Cautious

Currently , the world is undergoing a pandemic and global recession continues to threaten. In addition, for India, the world bank has projected a contraction of negative growth of 9 percent for financial year 2020 and negative growth of 3 percent for financial year 2021.

The projected contraction of GDP will lead to a contraction in demand, so NVVN 's strategy for the initial 3 years is to be asset light and invest in businesses that give its parent company NTPC a competitive advantage.

PROPOSED BUSINESS PLAN INITIATIVES (3-10 YEARS)

ASEAN Countries Expanding Cross border trade to ASEAN Countries

Billing and Metering Business

Since, NTPC is looking for forward integration of its generation business by acquiring the distribution companies. Hence, installation of smart and prepaid meters can be done by NVVN.

For billing purpose, the payment application can be designed and maintained by NVVN.

Expanding Pellet Manufacturing Plant in India

Since, there is a mandate of using agro-residue from Ministry of Power to generation companies, thus NVVN is in the process to provide paddy straw pellets to NTPC & other generators by building pellet plants in different states.

Power Exchange Business

The exchange business has high growth potential in coming future. Moreover, the business is skewed towards one player(IEX). Thus, this is very lucrative option for NVVN, hence NVVN can buy stakes in PXIL and in later stages can even set up a power exchange.

Creating more small Solar & Wind Assets under RESCO Model

Entering into Gas Trading Business

Medium Term (3-10Years): View Neutral

During this phase, the economy will be in recovery phase and demand will be back on track.

Thus, during this phase, the NVVN's strategy will be to invest in businesses that will spur demand for the parent company's generation business.

PROPOSED BUSINESS PLAN INITIATIVES (3-10 YEARS)

Buying stake in various indigenous RE product manufacturing industries - because of disrupted supply chain of imported RE products, there will be growth in indigenous RE product manufacturers. (Like investing in indigenous bankable module manufacturer or solar PV manufacturing)

Investing in RE Microgrid in collaboration will amplify the Government of India's ongoing campaign to provide electricity to rural areas, and unleashing the potential of renewable microgrids to serve households and businesses that suffer from poor reliability and coverage by traditional grid-based power.

Set up a clearinghouse business to operate between consumers and financial institutions.

Investing opportunities in Startups

Energy Storage Solutions

Investing in EV Charging business

LONG TERM (BEYOND 10 YEARS): View Positive

During this phase, the expectation is that the demand will be expanding and Indian economy will be in growth phase.

In this phase, the NVVN's strategy will be to invest upcoming technologies and become a asset based company from a trading company thus, having diverse portfolios of business.

PROPOSED BUSINESS PLAN INITIATIVES (BEYOND 10 YEARS)

According to the estimates, the volume of PV (photovoltaic) waste in India is estimated to increase to 200,000 tons by 2030 and around 1,8 million tons by 2050. Since most of the photovoltaics are imported and India is also poorly positioned to handle photovoltaic waste as it does not yet have the same policy guidelines, it is the hour's need to handle this situation before it arises.

NVVN can work alongside holding govt hands to develop an innovative business model for solar e-waste recycling and also to develop CPCB framework and policy recommendations for the provision of market-based e-waste management incentives.

Energy Efficient Programme can be developed by NVVN at different municipal systems with the deployment of energy efficient pumps along with other energy efficient measures and RE microgrids/grid connected for reducing the electricity bills.

Both Municipal Corporations and Commercial space operators can be roped in for such projects.

Invest heavily on Energy storage projects and RE projects with energy storage provisions along with a long term plan of creating an Energy Storage Resource Market of which NVVN can behave as a market operator by creation of a subsidiary.

Profitability Snapshot of the Proposed Business Options

Business Option	Probable Investment	Return on Investment (Approximate)
Billing and Metering	The typical cost of the prepaid meter is between Rs 4500-5500. While the net O&M cost of meter is around Rs 150 per annum. The scale of investment will be the function total customers.	Studies shows that, considering 100% billing efficiency the payback period for commercial customer is 5 years whereas for domestic customer is 28 years.
Investment in Start-Ups	Typically the investment amount is 5-10% of the profit. So, for NVVN that will be around 5-6Cr	Usually the venture capitalist targets a return of 20% from their investment.
Energy Storage Solutions	Studies shows that for 4-Gwh plant, the capex requirement is 2800Cr	According to the feasibility studies conducted the payback period of the plant will be 8 years and ROI will be 15%

Proposed Business Opportunity	Approx. ROI/Financial Viability/Economic Benefit
Commercial EV Operation in Urban Areas	ROI @ 9 % for commercial operation with around 65% savings in energy costs and around 40% savings in maintenance costs.
Andaman LNG Project	Cost Estimate of Rs. 500 Crores for the project. Feasibility studies suggest 10% CAGR of electricity demand in Andaman
SNA Activities/Cross Border Electricity Trading	Projected Electricity Demand (Gwh) vis-à-vis CAGR of 7.4 % in South Asia.
Tolling & Commercial assignments of Stranded assets	Financial Leasing of stranded assets with viability potential. A model that helps identify potential stranded assets and help them operating with benefits would generate business opportunities for NVVN.
Solar Business	ROI @ 13% (approx.) depending upon project financing options and other project details. CAGR ~116% is expected in 2019-2024 period for solar rooftop.
Energy Storage Solutions	For the long term business opportunity which is at development stage, but has reached an inflection point, where investments in early stages can help gain first mover advantage along with favorable ROI options with decreasing costs. Hybrid storages improve ROI.

Proposed Business Opportunity	Approx. ROI/Financial Viability/Economic Benefit
RE Microgrid	Some of the for-profit social enterprise are striving for a 15% minimum return on investment (ROI) for investors with its innovative business model which NVVN can see as an opportunity to electrify Indian villages under Saubhagya scheme and help the govt. in 100% electrification mission.
EV Charging business	A typical 50 kWh DCFC costs over Rs 1.5 million. Since present models of EVs sold in India cannot be charged above 1C rate and batteries are 11kWh to 25kWh capacity, investment in DCFC of over 25 kWh would yield unappealing returns, unless manufacturers roll out electric cars with batteries capable of fast charging with DC output in the range of 400-500V or higher.
Pellet Manufacturing Plant	With an investment of 2 to 3 crore, ROI can be achieved as high as 10 to 13 %.
Solar e-waste recycling	Still at a nascent stage globally, both in terms of technical standards and physical infrastructure. Hence, not commercially viable as total estimated cost including transportation can vary between USD 400-600/ tonne, far exceeding value of the recovered material.

Business Risk Profile

Proposed Business Opportunity	Risk Profile
Billing and Metering	The Billing efficiency is the most sensitive parameter for the ROI and payback period calculation for this business option.
Investment in Start-Ups	According to the Forbes report 90% of the Start-ups fails. Hence, Start-up investment is high risk business option.
Energy Storage Solutions	It is very asset heavy, technology centric and capital intensive business. Thus, comes in high risk category

Proposed Business Opportunity	Major Risk Profile (Financial, Commercial, Political & Regulatory)
Commercial EV Operation in Urban Areas	Vehicle Pricing, Setting up of public charging infrastructure to ensure swift fleet operations.(Financial)
Andaman LNG Project	
SNA Activities/Cross Border Electricity Trading	Non-Existent comprehensive framework and physical infrastructure.(Commercial, Regulatory)
Tolling & Commercial assignments of Stranded assets	Financing Risks
Solar Business	Ensuring a reliable payment security mechanism for solar rooftops (Financial)
Energy Storage Solutions	Primary risk lies with better adoption practices and Regulatory policies. (Regulatory)
RE Microgrid	Theft of physical assets and theft of electricity remain risks throughout the lifetime of the infrastructure. (Theft Risk)
EV Charging business	Technological advancement risk
Pellet Manufacturing Plant	
Solar e-waste recycling	Commercial Risk (commercially non viable)

THANK YOU

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www.nvvn.co.in

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