ELECTRIC MOBILITY FORUM

ENGAGE
Connecting Big Ideas To Action

Sustainable Financial Mechanisms and Innovative Business Models for Electric Vehicles in India

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Sustainable Finance

A Macro Approach

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Sustainable Finance – What is it?

- Sustainable finance = Any model which is independent of government support
  - **Profitable** & Market Based
  - Replicable/Scalable with minimum marginal cost
  - Creates a positive societal effect

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India's Rapid Urbanization

- An Urban population of 600Mn people – To give it perspective, this is twice the size of the population of USA and almost equal to the population of Europe but using 1/8th the land area
- Creation of over 50 new cities with population of over 1Mn
- Young demographic – Increased consumption needs with higher mobility demand

India's Rapid Urbanization – An opportunity for sustainable finance

- Urbanization Infrastructure Spheres
  - Resources – Energy, Nourishment & Water
  - Physical – Mobility, Sanitation & Real Estate
  - Social – Security, Education, Recreation & Health
  - Financial – Banking, Credit and Investment

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Financing Rapid Urbanization through Electric Mobility

- Areas Of Influence – Energy, Mobility, Health and Credit
- Creation of a financial product (Credit) which monetizes each of the areas of Energy, Mobility and Health.

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Financing Rapid Urbanization through Electric Mobility

- Factors of E-mobility which allow for investment
  - Fixed OPEX cost
  - Long Lived Asset
  - Fixed & certain demand source for energy
  - Known positive carbon effects for carbon pricing
  - Secondary use of batteries to generate revenues in sister sector

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Show me the money – Creating a Liquidity Sink

- **12 Years** of Low and **Negative global interest** rates coupled with QEs have created trillions of dollars of liquidity looking to a stable market. Most of them with a green investment requirement
- Offer them a concept of a liquidity sink (modeled after thermodynamic concept of heat sink) to soak up their excess liquidity. Create a value creation machine fueled by India's Rapid Urbanization
- Electric mobility addresses the problem of cost uncertainty and provides a platform for mobility, energy with social benefits

A New Paradigm to Finance Urbanization

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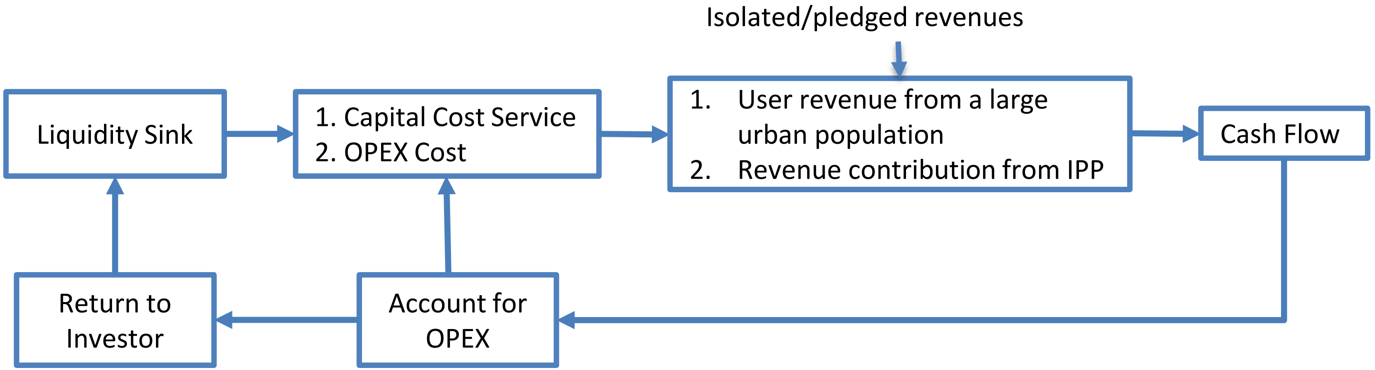
Rapid Urbanization E-Credit		
Low Uncertainty		High Yield
Fixed & Certain Opex	Large Demand Pool of Users	Definitive Value addition

Low Uncertainty Factors

- Fixed & Known Cost: Energy, Capital and Maintenance
- Complimentary uses of already installed infrastructure
- After life value
- **A Large Pool of Users Create Dependable Revenues**

Yield Mechanics



A New Approach - Lease finance

Debt Finance

- Asset ownership lies with the borrower
- Tax benefits accumulated by the borrower
- Term can be the entire economic life of the asset

Lease Finance

- Asset ownership/title is with a lessor. The borrower, aka the lessee is utilizing the asset
- Tax benefits claimed by the lessor
- Term cannot exceed over 85% of the economic life of the asset

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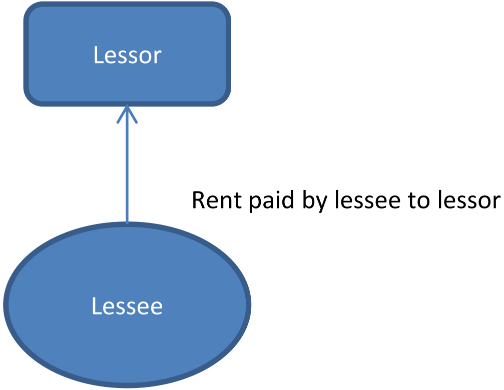
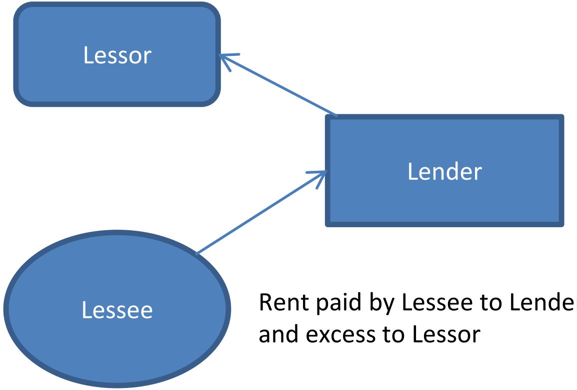
Lease finance



Leveraged lease



Rent paid by Lessee to Lender
and excess to Lessor

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Components of a lease structure

Part 1
- Cost of asset
- Cost of Infrastructure
- Transaction costs

Part 2
- Rent payments

Part 3
- Cost of Energy & Maintenance

Part 4
- Residual Value after lease term (optional)

Part 5
- Discount Parts 2,3,4 back to Part 1

Financially Engineered Product

PRODUCT PRICING

$$PV = \sum_{k=0}^{n} \frac{1}{(1+\mathrm{i})^{n}} cf^{k}$$

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Result

- Financing of a new power grid
- Increased efficiency and profitability of IPP – can lower cost of industrial energy and thus increase industrial output
- Reduced mobility pressures
- Creation of a liquid credit market which can cater to MSMEs both as credit disbursement

Business Models

Spearheaded by Start-Ups with Incumbents adopting the Start-Up’s success stories

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EVs Servicing the Shifting Market Dynamics

Consumer focus on convenience, experiences and unwillingness towards asset ownership is an ideal setting for the development of electric mobility

- Commercial mobility is now driven by e-commerce and delivery-based consumption
- Personal mobility driven by shared, connected and on-demand transport

Commercial Electric Mobility Growing

- First & Last Mile Delivery – Ecommerce delivery through electric SMC/LCV with charging capabilities at warehouses
- Last mile transit – Multimodal transit from metros and suburban rail to destination with stations as closed loop centers with charging infrastructure
- On demand transit – Migration of ***mass*** transit to service MaaS nature – Expansion of private players in the mass transit segment due to rapid urbanization and fixed cost of e-mobility

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Factors Driving Adoption

- Lease finance replacing traditional vehicle finance
- Higher utility and uptime of the vehicular asset due to increased demand
- Traffic congestion resulting in frequent start stops make it ideal for commercial EVs to navigate the urban drive cycles
- Lower TCO

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ELECTRIC VEHICLES & PERSONAL MOBILITY

Investing in Experiences

- Experience Vs Asset Ownership
  - Millennials are changing the way people look at asset ownership
    - India poised to become the youngest country with an average age of 29 by 2022 - Any market solution needs to be millennial centric to succeed in India
    - Experience, not ownership, will reduce the traditional secondary market for used vehicles – which is the bedrock of current auto finance
    - Commitment Phobic – New income earners are not willing to be tied down to long term asset ownership and accompanying debt repayments

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Cost Conscious to Value Conscious

- Millennial consumers focus on daily trips; no range anxiety
- Willing to pay a higher cost for short term need rather than a long-term fixed asset such as a car
- Low Commitment Subscription model for self drive vehicles will appeal to most but only when included as part of a turn-key solution

The next 10,000,000 cars

- DESIGN MATTERS – Millennial driven market – Experience trumps functionality
- Short term (2-3 year term) subscriber driven market
- Recyclability of cars important in design of vehicles i.e. after 2-3 years the cars can be refurbished to be released to first time subscribers in next emerging city
- Co-ordinated effort with power producers, as they are a key beneficiary and partner
- Importance of connected vehicles: S&P 500 Energy Index valued at about $1.4Trillion; market cap of Amazon, Apple, Alphabet and Microsoft = $4.151Trillion.

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Indian drive cycle advantage

- Old Chicken and Egg – Chargers vs EV Demand
  - Charging cycles very different from filling up at a gas station
  - Indian market is mostly the urban drive cycle – this allows for night-time charging with various energy as a service models
  - Large urban demand coupled with unique drive cycle allows the market to reach scale and drive infrastructure deployment and not the other way round

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Conclusions

- With EVs arrival, markets will change dramatically
- Great Opportunity exists because of EV's nature
- Will market leaders in this industry transform finance and usage methodology? Time will tell
- Legacy Players will have to become nimble to stay relevant

THANK YOU

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