Case Study of E-mobility in Jordan and Opportunities for Emerging Economies

The Future of E-mobility and Urban Planning in Egypt: EV Developments in the Context of Sustainable Cities

19-20 November 2019
SESSION-2: Market uptake and stimulating the sector

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Outline

- National context
- Enabling environment
- Key drivers and success factors
- Positive outcomes and challenges
- Opportunities
- Lessons learned
National context

- **National socioeconomic indicators:**
  - Rapidly growing population of 10.5 million
  - Including ~1.5 million refugees over past few years
  - High unemployment, young population (over 50% under age 24), high cost of living
  - High debt-to-GDP ratio (~95% in 2018 compared to 60% in 2008)

- **Energy sector indicators**
  - Energy sector 90% dependency on fuel imports
  - Cost of energy to GDP: 10%
  - RE at 8% of energy mix, target 10% by 2020
  - Highest GHG emissions (81%, including transport)

- **Transport sector indicators:**
  - Transport sector accounts for 49% of energy consumption (2018)
  - 2nd contributor to GHG emissions (32% of energy sector emissions)
  - Low access to public transport (0.7 buses / 1000 persons, 11% use public transport)
  - 19% household income spent on transport

- **Other sectors:**
  - Water scarcity (among most water-poor countries globally)
  - Overstretched waste management infrastructure
  - Agriculture accounts for majority of water use, linked to livelihoods

*Development in all sectors is linked to challenges in the other sectors!*
Enabling environment for sustainable transport

- National vision 2025, strategies, sector plans, renaissance plan (15% by 2020)
- Regulatory framework and policy incentives (RE, EV, CC) (tax, customs, fees)
- Private sector investment opportunities (fleets, BRT, e-charging) → NGGP
- International agreements & finance (NDCs 14% by 2030, GCF, IFIs)
- Engagement of private sector, NGOs, grassroots and donor community (studies, groups, projects)
History of e-car growth in Jordan

Number of E-cars

- 2015: 564
- 2016: 1274
- 2017: 7755
- 2018: 6424

Total: ~16,000 cars end of 2018

Source: DOS
### Key Drivers: regulatory framework and policy incentive

- Leading role of Ministry of Environment (green growth, climate change, air quality, policy incentives)
- Direct mention of ZEVs in INDCs (2015)
- Exchange schemes (e.g. scrapping fuel-based cars with exemption on Hybrid)
- Tax and customs exemption of Hybrids (partial) with 3-year visibility of increases by GoJ
- Total tax and customs exemption on EVs and reduction in annual registration fees
- Driven by economic development to attract investments and create jobs in the “clean tech sector”, create an EV market (USAID JCP)
- Issuing “EV Charging Instructions” in 2016 addressing both individual and commercial use (by the Electricity and Minerals Regulatory Commission)
- Leveraging RE&EE law, guidelines and tax incentives (zero carbon transport)

### Success factors

- Solid business case for individual and commercial deployment of EVs (cheaper to buy & operate)
- Pilot projects by public sector (e.g. Tawseeleh taxi service, municipal and public fleets)
- Engagement between stakeholders: regulators, private sector, NGOs, academia, int’l partners / donors
- Linking to wider national strategies and policy frameworks (climate, green growth)
- Active grassroots movement (60 K member social media group / EV Association)
- Potential for large-scale investment in charging infrastructure
End of 2018, future looking bright for EVs.

Uber Jordan Commits to 50 Percent Electric Vehicles by the End of 2018

Tesla Launches Electric Cars in Jordan

Stakeholders hail project to install 10,000 electric car charging stations
Positive outcomes

• Fast uptake of EVs in Jordan with about 16,000 cars on the road by end of 2018
• Reduced fuel dependency and improved air quality
• Monetary savings by users, improved connectivity and access to work / education
• Growing interest by public and private sector
  • Government fleets, GAM and other public sector entities (e.g. DOS switching its fleet)
  • Private sector uptake (e.g. Aramex mini-bus fleet, Uber)
  • Electric BRT & tariff restructuring being assessed, transport part of NGGP-AP (GGGI)
• Community of practice
• Growth for supporting industries (maintenance, services, smart systems / apps)
• Draft concept note to GCF prepared for solar powered e-buses / added to NDC action plan (going beyond ‘cars’)

Challenges

- Tax and custom exemptions lifted in 2019 (abrupt decline in sector)
- Commercial tariff to enable the investment in national charging infrastructure still a barrier
- Detailed grid impact assessments and energy storage potential have yet to be assessed
- Health and safety standards, enforcement (QC)
- EV technology / driving range (150 Km), charging time
- Already congested roads (20% increase in car ownership)
- Lifecycle impacts of batteries
- Leveraging solar, IT technology (slowdown of solar sector)
- Electric buses not yet materialized, only at study stage
Opportunities

• Holistic transport sector planning is gov priority, may include electric public transport
• FES mission to Germany in summer 2019 with key policy recommendations (infrastructure, finance, private sector)
• Grid upgrades, role of renewables, energy storage projects
• Stronger environmental agenda (driven by climate change and green growth action plans)
• Leveraging climate finance for strategic projects (e.g. electric buses GCF concept note)
• Better data collection and monitoring (MRV system starting with energy)
• Potential for large-scale investment if tariff challenge is addressed
• Potential to make use of EVs for Energy Storage
• “City Approach” with Greater Amman Municipality (GAM) Climate Action Plan (WB), and Green City Action Plan (EBRD) as well as other municipalities
• Potential for start ups and green innovations (e.g. apps, e-bikes, batteries..) and other businesses
Hot off the press!

استكمالاً للحزمة الأولى
تنشيط الاقتصاد وتحفيز الاستثمار

إجراءات تحفيزية لقطاع الـ (قطاع تجارة السيارات والمركبات)

- لدعم التجار والمستثمرين في هذا القطاع وتمكين المواطنين من الوصول إلى عمله بمركبة اقتصادية وصديقة للبيئة
- تخفيف الضريبة على مركبات الكهرباء فئة 250 كيلو وات فما دون من 10% وتخفيض الضريبة على مركبات الكهرباء فوق 250 كيلو وات فما فوق من 15% وإلغاء ضريبة الزرön على المركبات والاستعانة عنها بضريبة 4% من قيمة السيارة
Lessons learned

• Clear national transport vision and strategies to guide growth, and attract partners
• Regulatory framework and policy incentives, with long term visibility
• Monetary savings are key drivers for people switching to cleaner transport
• Business case must make sense for private sector investments (tariffs)
• Cross-sectoral coordination (energy, transport, environment, planning, municipalities)
• Holistic view of transport sector (not pushing for cars at the expense of public transport)
• Stakeholder engagement in policy and project development (public, private, NGO)
• Role of grassroots organizations, civil society and startups
• Raising awareness at all levels
• In addition to traditional development finance, projects with climate change “adaptation” or “mitigation” aspects can unlock climate finance (strong MoEnv)
• Sustainability and O&M aspects need to be considered (grid impacts, links to renewables, quality / maintenance, lifecycle assessment e.g. batteries)
• Highlight positive economic impacts: jobs, investments, energy security, improved environmental quality
• Development co-benefits: education, work (especially females), markets, health
Thank you