Thailand, Bangkok

Inter-regional Workshop on EE Investments

Project: **Efficient Street Lighting in Aragatsavan community of Aragatsotn Region of Armenia**

Armenia, Yerevan 2014

Mission and Motivation

Efficient Street Lighting in Aragatsavan community of Aragatsotn Region of Armenia

Replacement of High Pressure Sodium Lamps with LEDs in Street Lighting Systems

Key motivation :

- Achieve operational cost savings in small regional municipality budgets
- Support establishment of regional community management companies

Leading drivers :

- Lower energy consumption
- Reduced maintenance cost

Short summary of the Project

Efficient Street Lighting in Aragatsavan community of Aragatsotn Region of Armenia

Results	Beneficiaries	Implementers	Maintenance
500 units of 250W HPS light bulbs replaced by 500 units of 80W LED luminaries	Entire population of Aragatsavan town	Aragatsavan town administration	The newly established multi-utility company

Competitive Advantages

- Poor thermal
- Poor light output
- Pool light quality
- Makeshift appearance

- Ultra long source life
- Low power consumption
- Non-insect attracting
- Very efficient color generation

MAIN FINANCIALS INDICATORS

Energy savings	MWh annually 357.7
Investment	150,000 USD
Scenario 1:	100% own investment
Scenario 2:	Bank loan- $120,000 Own Investments-$30,000
Payback period	Scenario 1 - 4.9 years Scenario 2 - 7.8 years

Financial Model Outputs

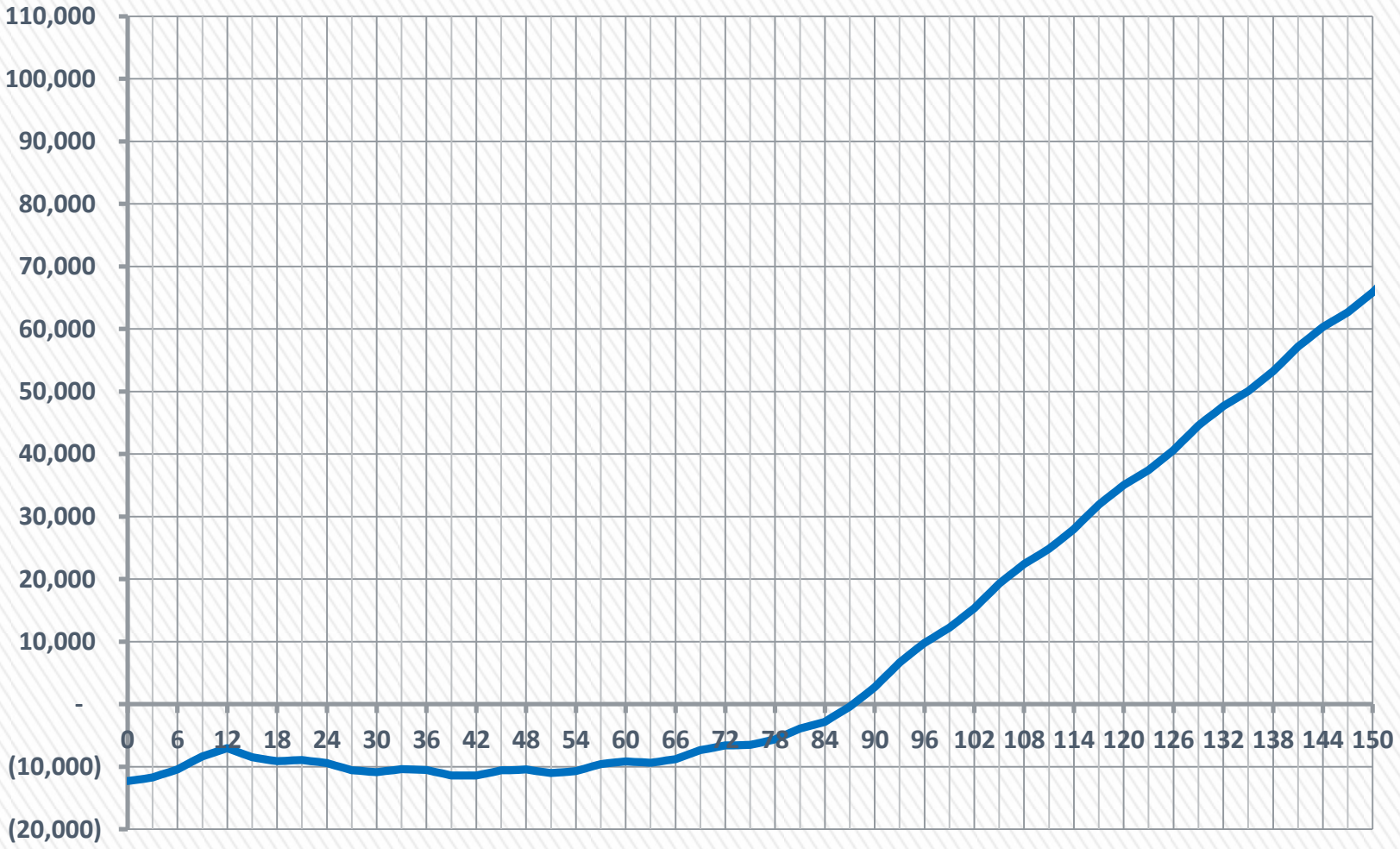
	100 % Own investment)	Mixed financing
IRR	19%	26%
SIR (savings-investment ratio)	1,56	8,99
Simple Payback (years)	4,9	7,3
NPV - USD	86,000	71,000

Annual electrical energy savings (MWh)	357,7
Power demand reduction (kW)	122,5

Type of light fixtures	Quantity of light units	Unit price USD	Total installed capacity (kW)	O&M cost ratio to energy consumption (AMD/kWh)	Cost of new installed system USD
HPSL 250W (325W including Electromagnetic Ballast)	500	0	162,5	1,4	
LED 80W (T>6500°K)	500	300	40	1	150,000

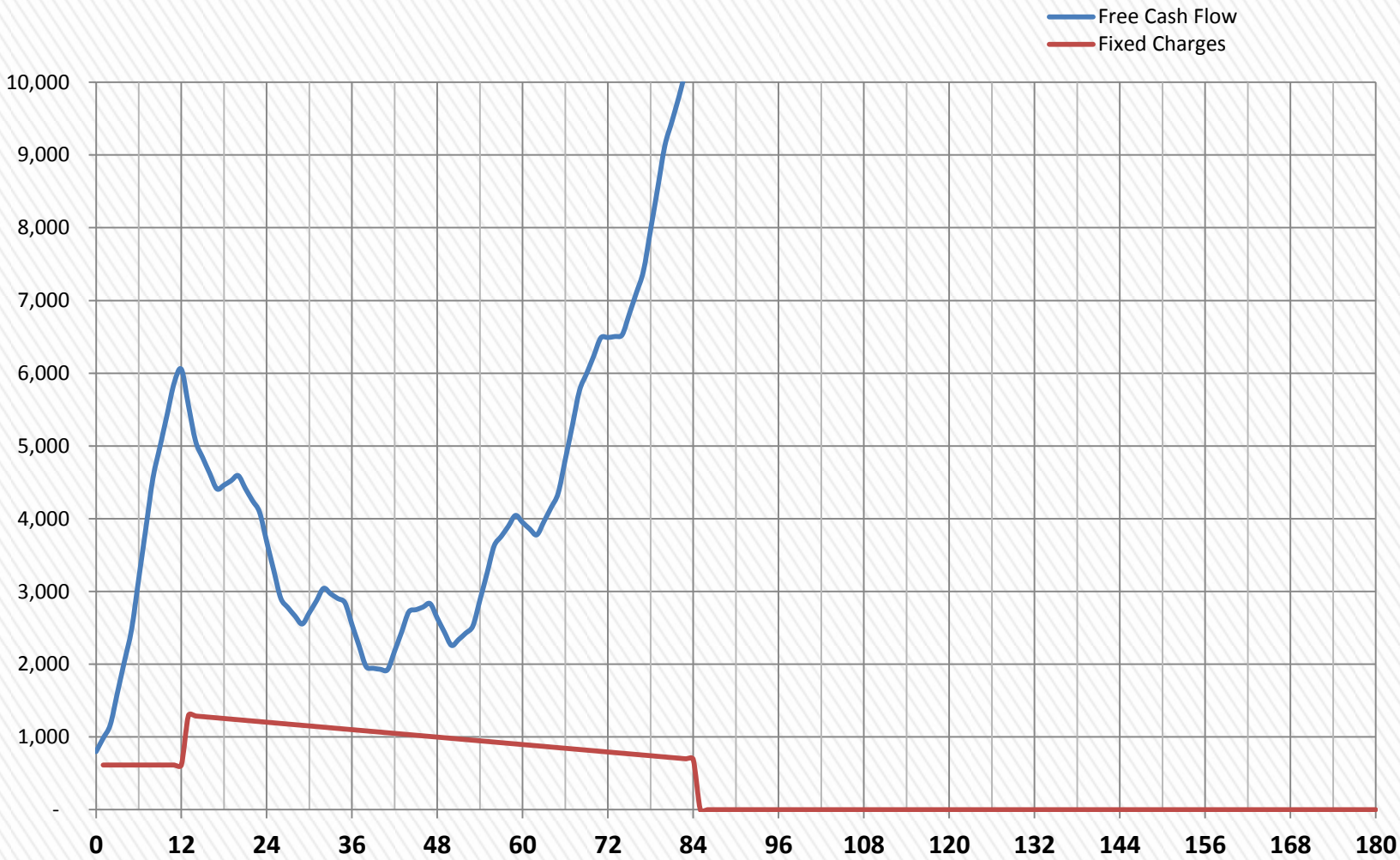
Annual GHG Reduction		
CO2	SOx	NOx
ton	Kg	Kg
250	1	190

Monthly Cumulative Cash Flow From (1000 AMD)



FREE CASH FLOW VS FIXED CHARGES

(CFADS vs Debt Service)



BARRIERS TO FINANCING and/or IMPLEMENTATION

There are no precedencies and procedures for Local Communities to get loans from financial institutions although the law allows communities to get loans with pledge of own assets

STAGES OF IMPLEMENTATION

- To establish community based multi-utility company
- To apply for the loan
- To purchase and installation of 500 LED lamps
- Disposal of old light bulbs

SUCCESS FACTORS

- Support from government and international donors
- Possibility to repay and service the loan with savings generated from improved efficiency
- High level of return on investment
- Positive environmental impact

THANK YOU FOR ATTENTION !!!

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