Bundled project of 10 Small Hydro Power Plants in Armenia”

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About EnergoCOr LLC

Energocor LLC was established in 2006 with the objective to provide energy services including implementing energy-efficiency projects as well as renewable energy projects.

The main services provided by EnergoCOr LLC are:

- ✓ Production of thermal insulation
- ✓ Implementation of energy efficiency projects in industrial sector
- ✓ Implementation of energy efficiency projects for buildings (including thermal insulation and effective heating)
- ✓ Feasibility studies, environmental impact assessments, economic and technical analyses
- ✓ Development of carbon financing schemes
- ✓ CDM projects development, including preparation of PIN, PDD etc.

Acknowledgement

- ✓ *Norsk Energi*
- ✓ *Norwegian Ministry of Foreign Affairs*
- ✓ *EBRD BAS Program in Armenia*
- ✓ *Ministry of Nature Protection of RA*

Description of the project

- ✓ The proposed project activity involves 10 small hydroelectric grid connected renewable energy projects with total capacity of 8.411 MW.

- ✓ The purpose of the project is the generation of clean hydroelectric energy and contribution to climate change mitigation efforts.

General information on SHPPs included in the project

N	*SHPP name*	*Location*	*Ownership*	*Installed capacity, MW*	*Annual generation, mln kWh*
1	"Ayrk-1" SHPP	Irrigation canal on Ayrk river	"Lusakunk" LTD	0.361	1.212
2	"Ayrk-2" SHPP			0.311	1.898
3	"Avazan" SHPP	Avazan river		0.291	1.83
4	"Erik" SHPP	Getik river	"Erik SHPP" LTD	2.46	8.63
5	"Jermuk HPP-2"	Arpa river	"Jermuki Hydrotech" LTD	2.35	10.24

General information on SHPPs included in the project

N	*SHPP name*	*Location*	*Ownership*	*Installed capacity, MW*	*Annual generation, mln kWh*
6	"Saravan" SHPP	Darb River	"Frima G.A.Kh." LTD	2.47	7.85
7	"Her-Her-1" SHPP	Her-Her Water Storage Pool		1.022	5.15
8	"Vardenis" SHPP	Pambak river		3.5	11.839
9	"Dzoragyugh-1" SHPP	Dzoraghygh drinking water pipeline	"Sector Quant" LTD	0.26	2.317
10	"Dzoragyugh-2" SHPP			0.394	3.447

Sustainable development indicators

- ***Environmental criteria***
  - *The CDM project leads to positive or decreased negative environmental effects*
- ***Economic criteria***
  - *The project has positive effects on the economic development of the country*
- ***Social criteria***
  - *The project has positive effects on social development of the country*
- ***Political criteria***
  - *The project has positive effects on the achievement of national, regional and sector priority objectives*

Type and category of the project

- ✓ **The Project is of Type I – *Renewable Energy Project***
- ✓ **The Project Category is I-D – *Grid connected renewable electricity generation***

Baseline

The baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient

BASELINE EMISSIONS = *ELECTRICITY GENERATION* x *EMISSION COEFFICENT OF THE GRID*

Baseline

- ✓ Emission coefficient is calculated as the average of the build and operating margin
- ✓ Build and operating margin will be updated ex-post
- ✓ Operating margin includes existing thermal power plants as well as new thermal power plants to be constructed during the crediting period
- ✓ Build margin includes the recent capacity additions to the systems

Baseline

- Summary of baseline calculation
  - Operating margin – 0.535
  - Build margin – 0.398
  - Emission coefficient of the grid – 0.437
  - Emission reductions – 23,778 t.p.a
  - Total emissions reductions over the crediting period – 237,780 t

Additionaity

- Barriers
  - Financial and investment barriers
  - Lack of investment
  - High interest rates
  - Tariffs uncertainty

Status of the Project

The ERPA was already signed between the EnergoCOr LLC and The Republic of Austria, Federal Ministry of Agriculture, Forestry, Environment and Water Management represented by Kommunalkredit Public Consulting GmbH ("KPC").

Potential projects

N	*SHPP name*	*Installed capacity, MW*	*Annual generation, mln kWh*	*Annual CER production, tone*
1	“Gomq” SHPP	1.76	8.57	3,700
2	“Sahakyan-1” SHPP	3.68	13.85	6,050
3	“Sahakyan-2” SHPP			
	“Amberd-1” SHPP	11.9	56.0	25,000
4	“Amberd-2” SHPP			
5	“Amberd-3” SHPP			

QUESTIONS?

THANK YOU!