



PROGRAMME FUNDED BY THE EU



"INOGATE Technical Secretariat & Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives" Project

**BUILDING PARTNERSHIPS FOR
ENERGY SECURITY**

www.inogate.org



Two exercises in developing EE/RES financing schemes and lending conditions

AHEF AM.082 WORKSHOP:

“Capacity building for financing of EE / RES projects”

November 05-09, 2013

Yerevan, Armenia

www.inogate.org

Vahan Babajanyan

EE / RE Source Financial Training & Research Expert, INOGATE TS



Exercise #1

Renewable Energy Sources



Project information

| | |
|--------------------------|-----------------------------|
| Wind turbine (power) | 0.8 MW |
| Confidence level | P75 |
| Investments | 1 200 000 € |
| Full-load operating time | 2 800 h/yr |
| Tariff | 0.125 €/kWh |
| O&M cost | 5% of calculated generation |
| Company assets | 3 600 000 € |
| Capital | 2 400 000 € |
| Depreciation allowance | 20 years |

Exercise #1 - Create:



1. Financing Plan

- Investment sources (bank, IFI, own sources, grant)
- Investor's share
- Investment timesheet by sources
- List of acceptable values of project indicators (NPV, SIR, IRR, PBP, D/R)

2. Financing Conditions

- Financing tool (loan, leasing, equity investment, LC/LG)
- Lending period/term
- Annual interest
- Grace period
- Repayment schedule





3. Risk management/security

- Collateral / guarantees / security
- Solvency assessment
- Tariff / market risks
- Political risks
- Technical / O&M risks
- Ecological risks

4. Implementation management

- Project development, (engineering, licenses, expertise, environmental impact statement)
- Contracting
- Construction
- Equipment purchase
- Commissioning

Calculate Exercise #1 project indicators
(NPV, SIR, PBP, IRR)

Exercise #2

Energy Efficiency



Project information

| | |
|--------------------------|--------------------------|
| Baseline consumption | 3 100 000 kWh |
| New consumption | 1 850 000 kWh |
| Investments | 520 000 € |
| Full-load operating time | 8 760 h/yr |
| Tariff | 0.125 €/kWh |
| O&M cost | 5% of annual energy cost |
| Company assets | 2 200 000 € |
| Capital | 1 400 000 € |
| Depreciation allowance | 15 years |

Information center uses 3 cooling units of 1180 kW ea. Energy auditor recommends changing technology to 1 free cooling unit @ 2110 kW.

Exercise #2 - Create:



1. Financing Plan

- Investment sources (bank, IFI, own sources, grant)
- Investor's share
- Investment timesheet by sources
- List of acceptable values of project indicators (NPV, SIR, IRR, PBP, D/R)

2. Financing Conditions

- Financing tool (loan, leasing, equity investment, LC/LG)
- Lending period/term
- Annual interest
- Grace period
- Repayment schedule





3. Risk management/security

- Collateral / guarantees / security
- Solvency assessment
- Tariff / market risks
- Political risks
- Technical / O&M risks
- Ecological risks

4. Implementation management

- Project development, (engineering, licenses, expertise, environmental impact statement)
- Contracting
- Construction
- Equipment purchase
- Commissioning

Calculate Exercise #2 project indicators
(NPV, SIR, PBP, IRR)