



ProForm: A Tool for Pre-Feasibility Analysis of Renewable Energy and Energy Efficiency Projects

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What is ProForm?



- A computational tool that:
 - Quantifies emission reductions
 - Calculates the financial impact of the sale of carbon credits on a project
- Designed to evaluate renewable energy, fuel switching, co-generation, landfill methane and energy efficiency projects
- Available in English and in Spanish

Rationale for the Development of ProForm



- Need for a common framework to conduct assessment of clean energy projects (i.e., projects with greenhouse gas reduction benefits)
- Lack of familiarity among small entrepreneurs in developing countries with financial analysis/pro-formas
- Lack of access among local developers to expensive project analysis software
- Requirement for evaluation of the impact of potential revenue from carbon credits under alternative project financing arrangements (additionality)

Who Should Use ProForm?



- Small entrepreneurs in developing countries
- National climate change/energy and regulatory agencies
- Individual/multi-lateral investors and financial institutions
- Consultants

Benefits of Proform



- Simple, transparent and precise methodology
- Lowers project preparation costs
- Reduces complexity and subjectivity in the process of estimating financial and environmental benefits.
- Can be used both for preparing project proposals and for evaluating project proposals

Types of Projects



- **Energy efficiency projects that:**
 - Reduce electricity consumption
 - Reduce fuel consumption
 - Reduce electricity and fuel consumption
- **Renewable energy projects that:**
 - Generate and sell electricity to the grid
 - Generate and use electricity internally
- **Renewable non-electric projects that displace the use of fuel**
- **Fuel switching projects**
- **Landfill methane gas capture projects**
- **Cogeneration projects**

Pre-Feasibility Analysis



- ProForm aids the user in evaluating a variety of scenarios
 - Unlimited, user-defined baseline scenarios
 - 3 scenario capability built-in
 - Values for carbon credits
 - Discount rates
 - Other financial and technical variables, such as
 - Loan terms
 - Electricity price
 - Capacity factor, etc.

Results



- Financial:



- Net Present Value
- Internal Rate of Return
- Cash Flow
- Debt Service Coverage Ratio

- Emissions reductions:

- C, NO_x, SO_x, PM

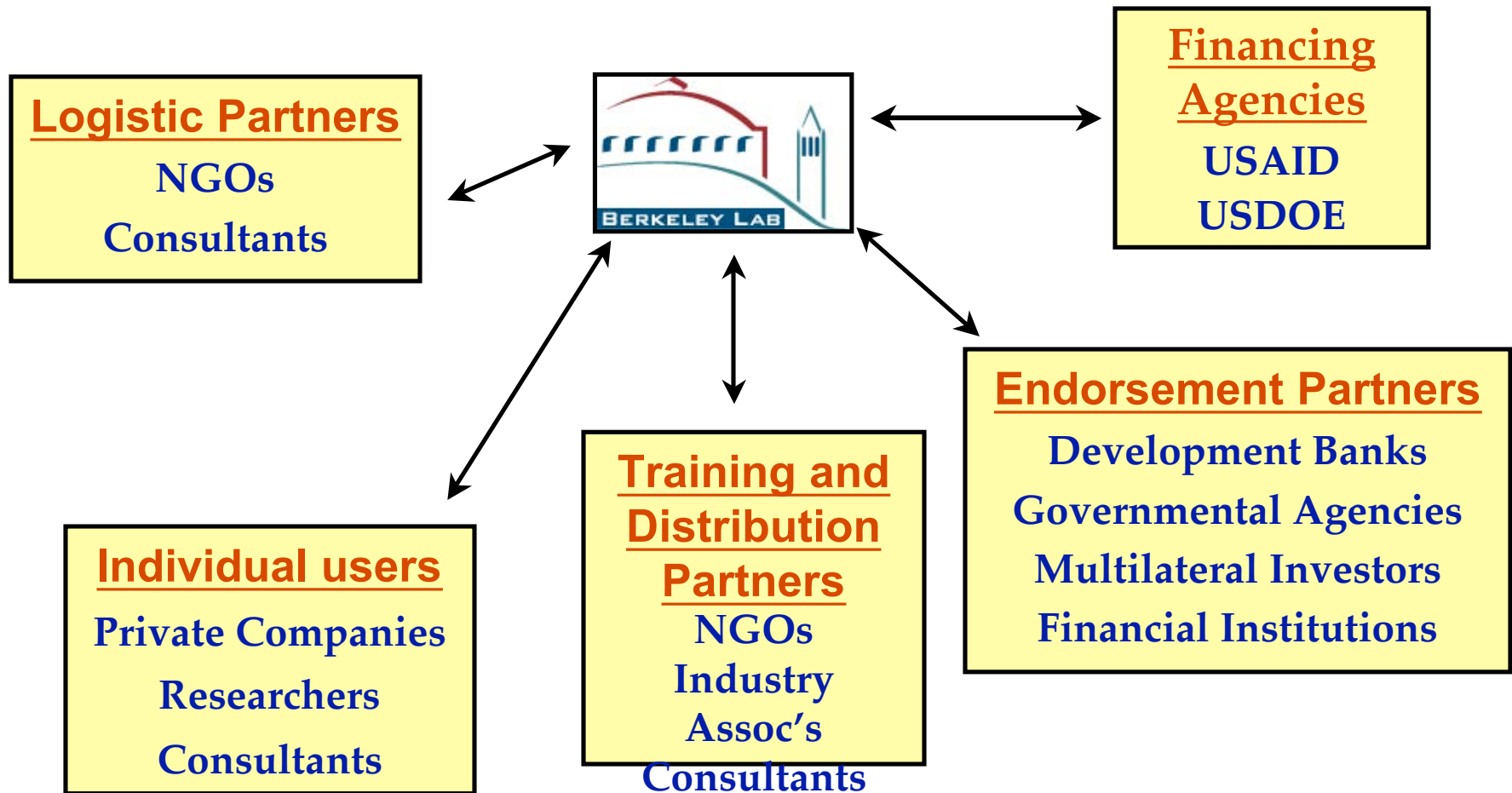


State of the Tool



- ProForm is a tool in development for a market in development
- Financing ProForm
 - Seed money from the U.S. Department of Energy
 - Continuing development, distribution, and training funds from USAID
- ProForm is distributed free of charge
- Training in the use of ProForm will be offered if there is sufficient interest and funding; also customized versions

Types of Partnerships



ProForm – Baseline Methodology



Profile of Baseline Electricity Generation

Baseline Technology

Generation Technology 1
 Generation Technology 2
 Generation Technology 3

Baseline Technology Type	Fuel
	None Selected
	None Selected
	None Selected

Generation Displaced By Project (% Of Total)

Baseline Technology Type 1 (None Selected)
 Baseline Technology Type 2 (None Selected)
 Baseline Technology Type 3 (None Selected)

%	
%	
%	
TOTAL - Must Total 100%	0%

Transmission And Distribution

Grid Losses

%	
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Baseline Technology Type 1 (None Selected)

Energy Conversion Efficiency

%	
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Environmental Emissions

None Selected - Fuel Carbon Intensity
 None Selected - Fuel SOx Intensity -- Optional
 None Selected - Fuel NOx Intensity -- Optional
 None Selected - Fuel Particulate Intensity -- Optional

Ton C/GJ000	
Ton SOx/GJ000	
Ton NOx/GJ000	
Ton PM/GJ000	

Renewable Non-Electric Replaces Baseline Electric

Baseline Technology Energy Conversion Efficiency Factor

%	
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Baselines and ProForm Results



Project: Small Hydro in Central America

Three Baseline Scenarios:

- Carbon intensity of current marginal dispatch
- Retired diesel brought out of mothballs
- Development of Central American grid

Baseline Scenarios	Avoided Carbon Emissions (tonnes/y)	Net Present Value (US\$ 000)	IRR (without carbon credits)	IRR (with carbon credits)
<i>I. Current marginal dispatched power</i>	3,560	418	12.2%	14.5%
<i>II. Retired diesel plants added</i>	5,560	638	12.2%	15.9%
<i>III. Interconnected regional grid</i>	2,780	332	12.2%	14.0%

ProForm Web Site



- ProForm version 3.2 is distributed free of charge at:
 - <http://poet.lbl.gov/Proform>
- Other tools and related publications are available at:
 - http://eetd.lbl.gov/ea/EA_C_I.html
- ProForm v. 4.0 will be available soon!