
REPIC Wissensgemeinschaft Mini-Grid

Dasag Energy Engineering, Switzerland + DESI Power, India

- **About Ourselves**
- **REPIC – DASAG – DESI Power Tiny Grid Pilot Project.**
- **Our experience of Decentralised Power Plants and Micro Grids for Sustainable Rural Development.**
- **Recipes for Successful Village Projects**

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About Ourselves: DASAG

- Power and energy sectors: 36 years.
- Development & Design, Projects, Applications: large fossil fuel power plants.
- Solar thermal power technologies: development, application, testing and replication.
- Biomass gasification based power plants: D&D, field testing and commercialisation.
- PV plants: Application, promotion, commercialisation.
- Technology management, transfer, co-operation, JVs.
- Policy studies.

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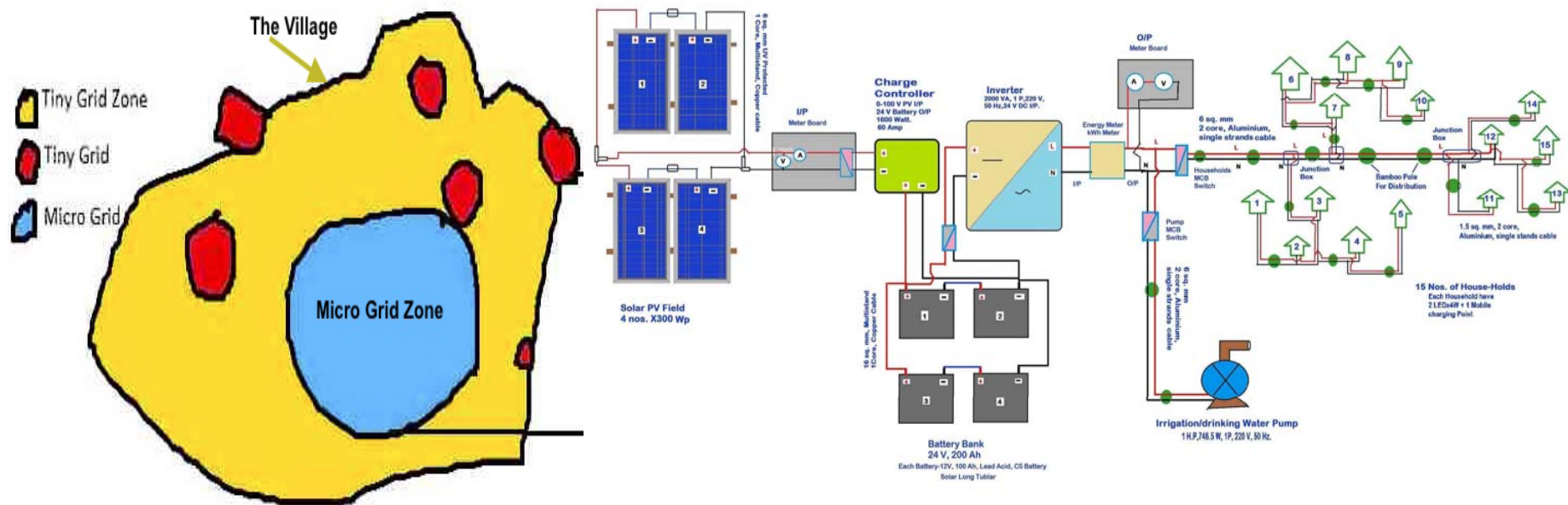
About Ourselves: DESI Power

- EmPower Partnership Projects: 20 years.
- Field-testing and adapting energy technologies for rural energy applications.
- Building, owning and operating decentralised power generation (biomass, biogas, PV and Hybrid), Micro Grids and Tiny Grids.
- Project development and "Engineering, Procurement, Construction, Operation and Maintenance" [EPCOM] services for village plants.
- Load development and management.
- Financial engineering, project packaging and fund raising.
- Training and skills development of villagers.

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DESI Power – REPIC: Tiny Grids with lighting and irrigation water services for small farmers



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Tiny Grid: irrigation water, lighting and mobile charging



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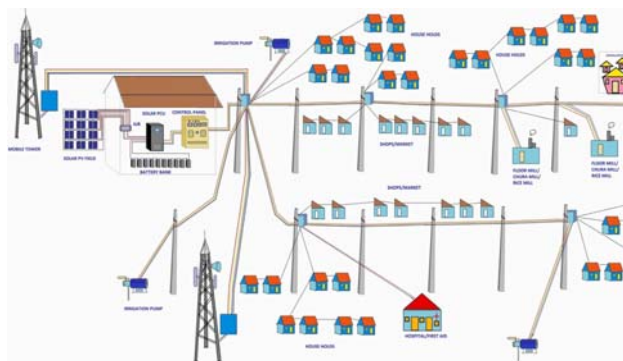
Tiny Grid: mobile pumping for irrigation water



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DESI Power Power Plants and Micro Grids: Hybrid, Biomass and Solar PV.



24/11/16

Hari Sharan

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DESI Power: Energy Plantation / Local Biomass Fuel / Pellet Machine / Tailoring Shop



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Recipes for Successful Village Programs

Project Level.

- Planning with electricity as an "enabler" for jobs, farming, lighting and energy services.
- Establishing partnership structures with villagers and external providers.
- Detailed load surveys, PPAs, acceptable tariffs and load management.
- Designing power plants and Micro Grids based on collected data within the local matrix of resources and needs, technologies, financing, training and management.
- Optimising power plant and Micro Grid designs with tested technologies and solutions for meeting financial, social and ecological targets.
- Establishing an effective revenue collection system with user-friendly software and hardware solutions.

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Recipes for Successful Village Programs (continued)

Project level (continued):

- Ensuring Reliability of supply and services is absolutely critical.
 - Quality of equipment,
 - Timely delivery at village sites.
 - Timely availability of spares and trouble-shooting services at village sites.
- Providing management and financial audit and support services.
- Ensuring training and capacity building of villagers and project staff.

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Recipes for Successful Village Programs (continued)

Policy and Institutional:

- Establishing a framework for support: state support with incentives, subsidies and tariffs and private sector support with CSR and grants for training. .
- Establishing concrete financing schemes and linkage with banks and investors.
- Establishing CO2 emission savings and sources of carbon funds.
- Providing a framework for cooperation and linkage between central grid and Micro Grids when both available in a village.
- Harmonising technical, safety and environmental standards.
- Providing "Ease-of-Doing-Business" conditions for promoters, investors, suppliers and plant operators.

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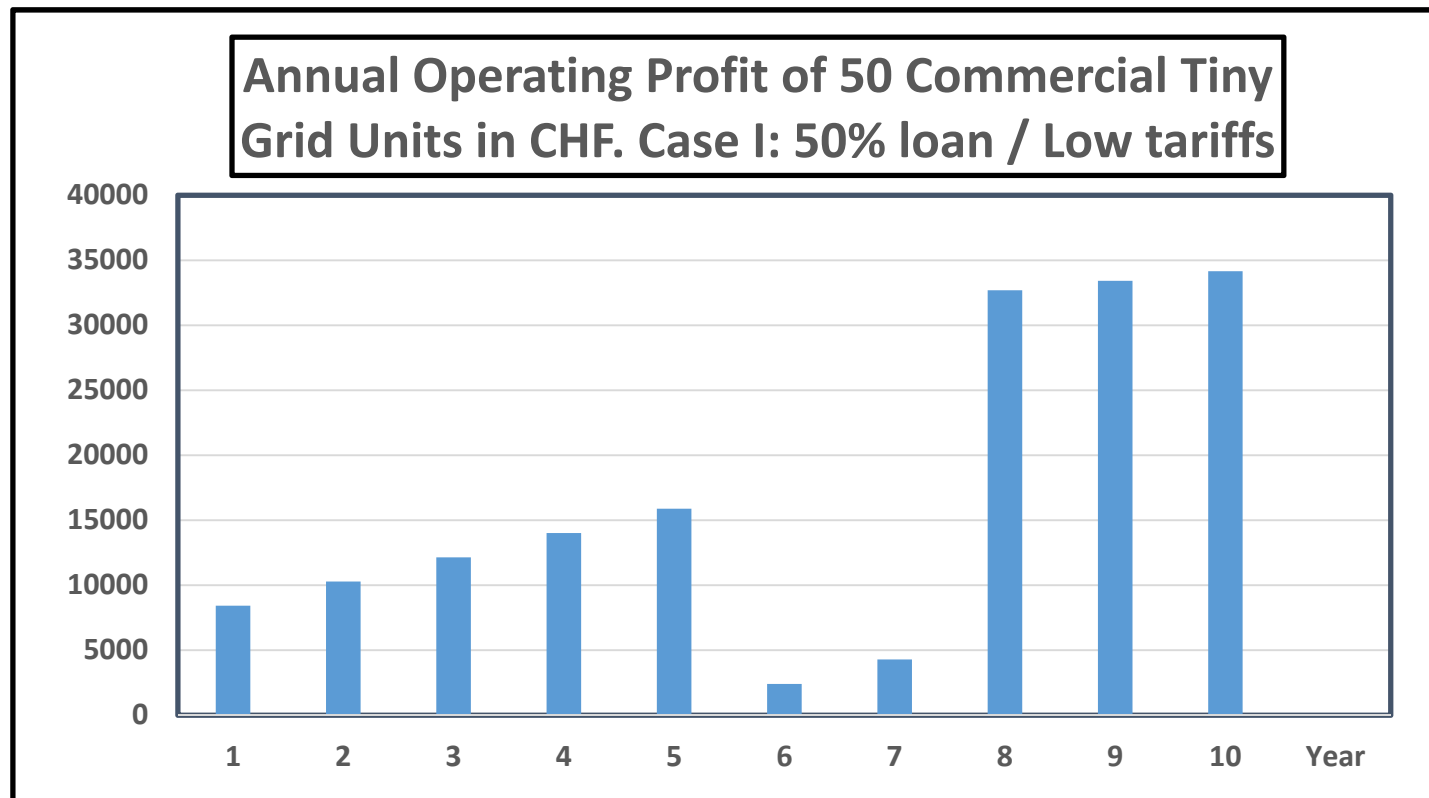
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Projected Financial Performance of 50 Commercial Tiny Grids (60 kWp)

		Case I/ Loan50% / Low Tariff	Case II/ Loan70% / Low Tariff	Case I/ Loan50% / Higher Tariff	Case I/ Loan70% / Higher Tariff
Total Project Cost	CHF	164'179	164'179	164'179	164'179
External Patient Equity.	CHF	82'090	49'254	82'090	49'254
Cumulative Profit (10 years)	CHF	167'738	123'409	206'749	162'421
Avg. ROE over 10 years	% / y	10%	15%	15%	23%

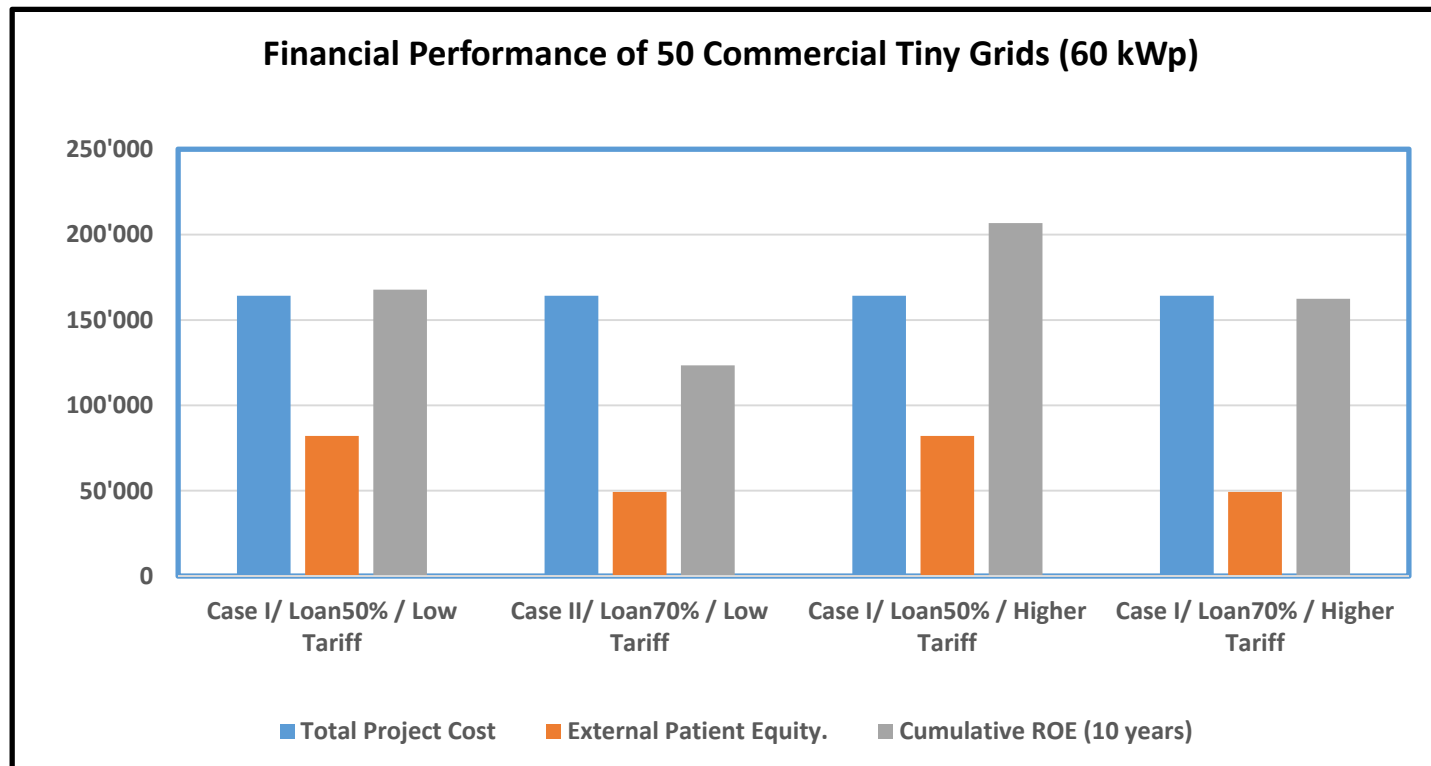
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