

# **Village Power '98**

## **Solar Electric Energy Delivery: A Business Model**

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Solar Electric Energy Delivery

# Overview

- The need
- A business model (SOLUZ experience)  
Customer  $\Rightarrow$  Technician  $\Rightarrow$  SSC  $\Rightarrow$  Country Op.
- Scale-up potential
  - » Market
  - » Investment Capital
  - » Operational Capacity

# Global Household Need

- 2 billion people without access
- 400 million households
- 10% coverage is 40 million HHs
- 10,000 technicians working 10 years

# Country Characteristics for Soluz Model

- Geographical area/population density
- Ability to pay in rural areas
- Government attention to rural electrification
- Capability of commercial sector
- Programs of the NGO sector
- Degree/quality of market conditioning

# Market Overview

## Dominican Republic

- Population = 7.5 million
- Area = 45,000 sq. km.
- Rural population = 3 million = 65/sq. km.
- 30% electrified by national grid
- ~ 400,000 non-electrified households
- ~ 8,000 SHSs = 2% penetration

# SHS History

## Dominican Republic

1984	1 demonstration SHS
1985-87	Market seeded with 100 SHS
1988	Enersol tech./micro training prog., import duties reduced
1989-93	10 micros $\Rightarrow$ 2000 SHS
1993	Total 4000 HHs = 1% penetration
1994	SOLUZ begins renting SHS

# Existing Slide

- Potential for PV

# Existing Slide

- Energy Expenditures



# Capital Requirements

## Dominican Republic

<u>Households</u>	<u>Capital</u>
200,000 (50%)	\$100 Million
40,000 (10%)	\$20 Million
5,000	\$2.5 Million

# **SOLUZ SEED™**

## **(Solar Electric Energy Delivery)**

- PV rental or “fee-for-service”
- Target 50% of local population
- Scale-up to min. 5,000-customer blocks

Near-Term Business Objective: Soluz Dominicana is building a commercial 5,000-home PV fee-for-service business operation to satisfy the electrical energy needs of rural households.

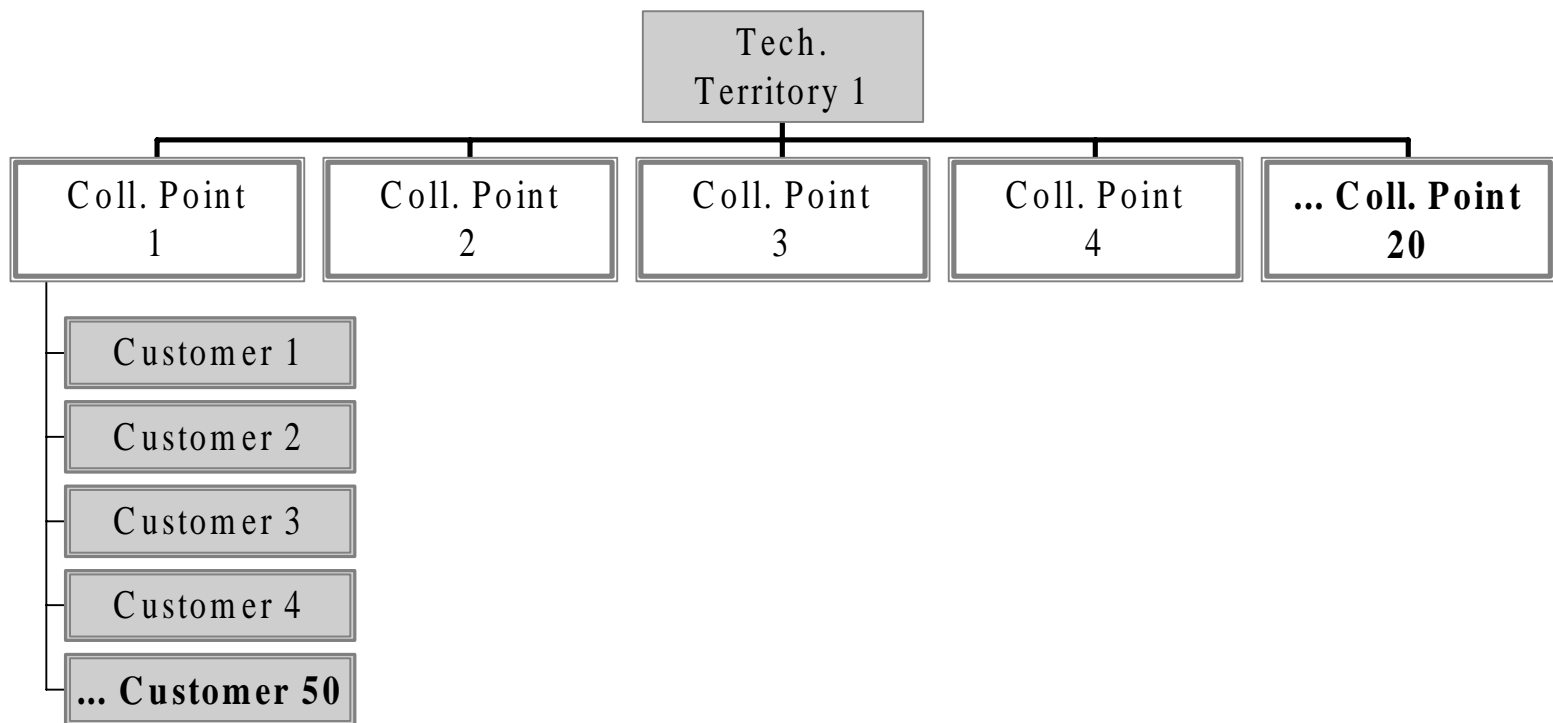
# Existing Slide

- Map of DR

# Photos of systems

(Discuss system sizes, fee structure)

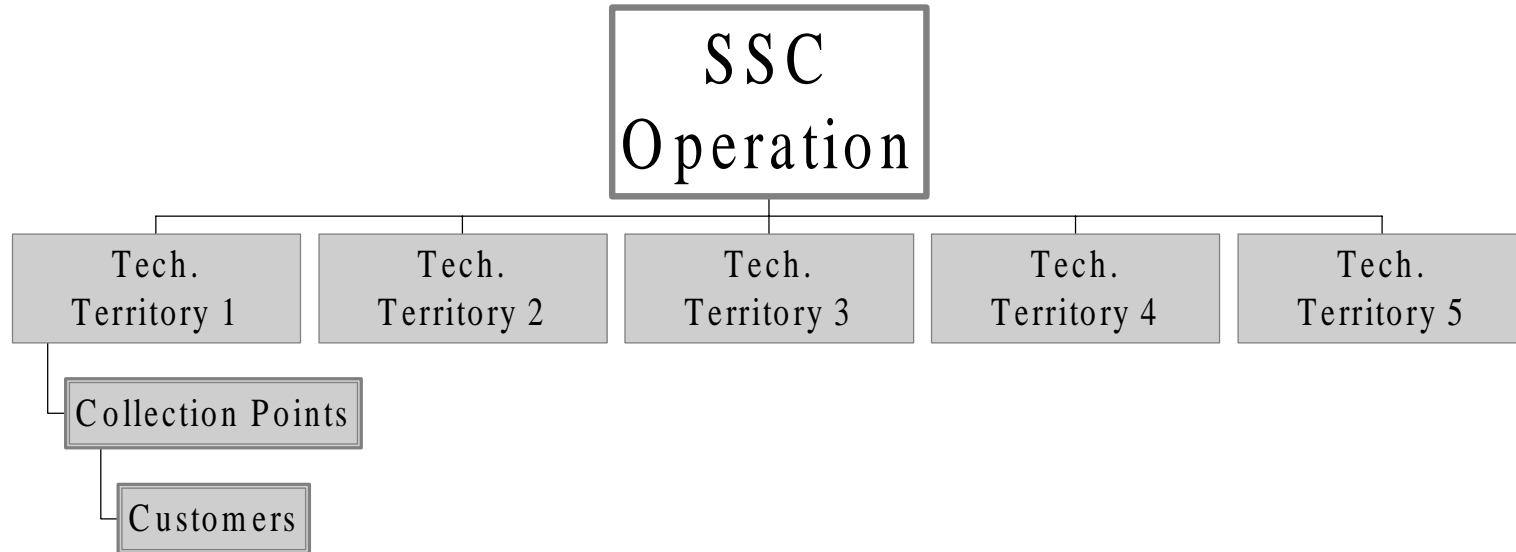
# Technician Service/Collection Structure



# Photo Slide

- Photo of Technician (Jose “Chepe” Mella)

# 5,000-Customer Business Unit



# 5,000-Customer Business Unit

(2 MW Equivalent)

## Financing Requirements:

<u>Equity</u>	<u>Debt</u>	<u>Off-Balance Sheet</u>	<u>Total</u>
\$500K	\$1,000K	\$1,000K	\$2,500K

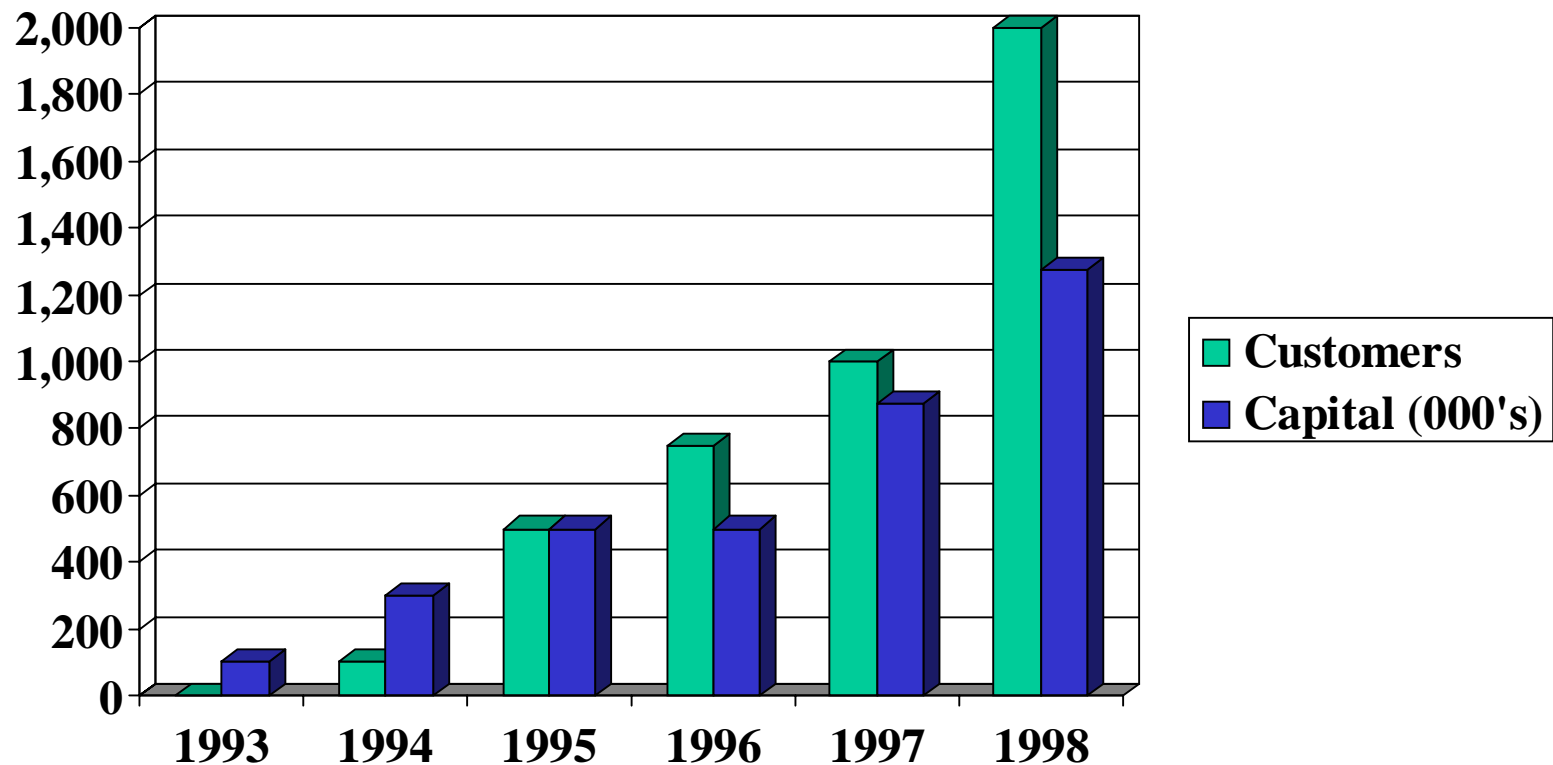
## Revenues:

\$1,000,000 annual (90% fee-for-service)



# SEED™ Progression

## Dominican Republic



## **DR Transactions (\$1.275M)**

Oct 93	\$100k	RF
Dec 93	\$200k	RF
Jun 95	\$200k	EEAF(AID)
Apr 97	\$75k	EEAF(IFC)
Jul & Sep 97	\$75k & \$75k	E&Co (IDB)
Sep 97	\$150k	Calvert
Mar 98-Oct 98	\$400k	SunLight

# Replication Honduras

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Soluz Dominicana, S.A.

Soluz Honduras, S.A.

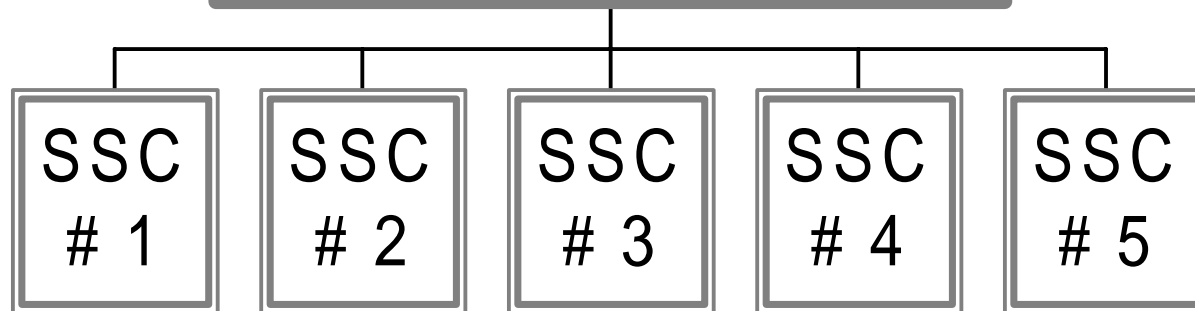
Year End	Customers
Yr 1	500
Yr 2	2,500
Yr 3	5,000



Solar Electric Energy Delivery

# Business Expansion to 50,000 Customers

Central Office



# 50,000-Customer Business Unit (20 MW Equivalent)

## Financing Requirements:

<u>Equity</u>	<u>Debt</u>	<u>Off-Balance Sheet</u>	<u>Total</u>
\$5M	\$10M	\$10M	\$25M

## Revenues:

\$10,000,000 annual (90% fee-for-service)

# Scale-Up Potential: Parameters for Growth

- Market/Customer Demand
- Investment Capital
- Operational Capacity

# Market-Customer Demand

- Willingness and capacity to pay
- Customer Payment Plans
  - Cash
  - Credit
  - Fee-for Service
- Concentrated Demand

# Investment Capital

- Standard issues
- Rural PV = new business activity
- Limited operational track record
- Potentially lean profit margins
- Uncertainty of sector restructuring
  - Private or government leadership?
  - Competitive PV market or rural concessions?
- High transaction costs



# Operational Capacity

- Need to train rural technicians
- Limits to rate of organizing/mobilizing human resources

# The Next Step?

