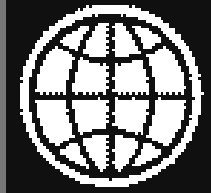


AEI workshop 2009

# Tendering Subsidies for Electrification

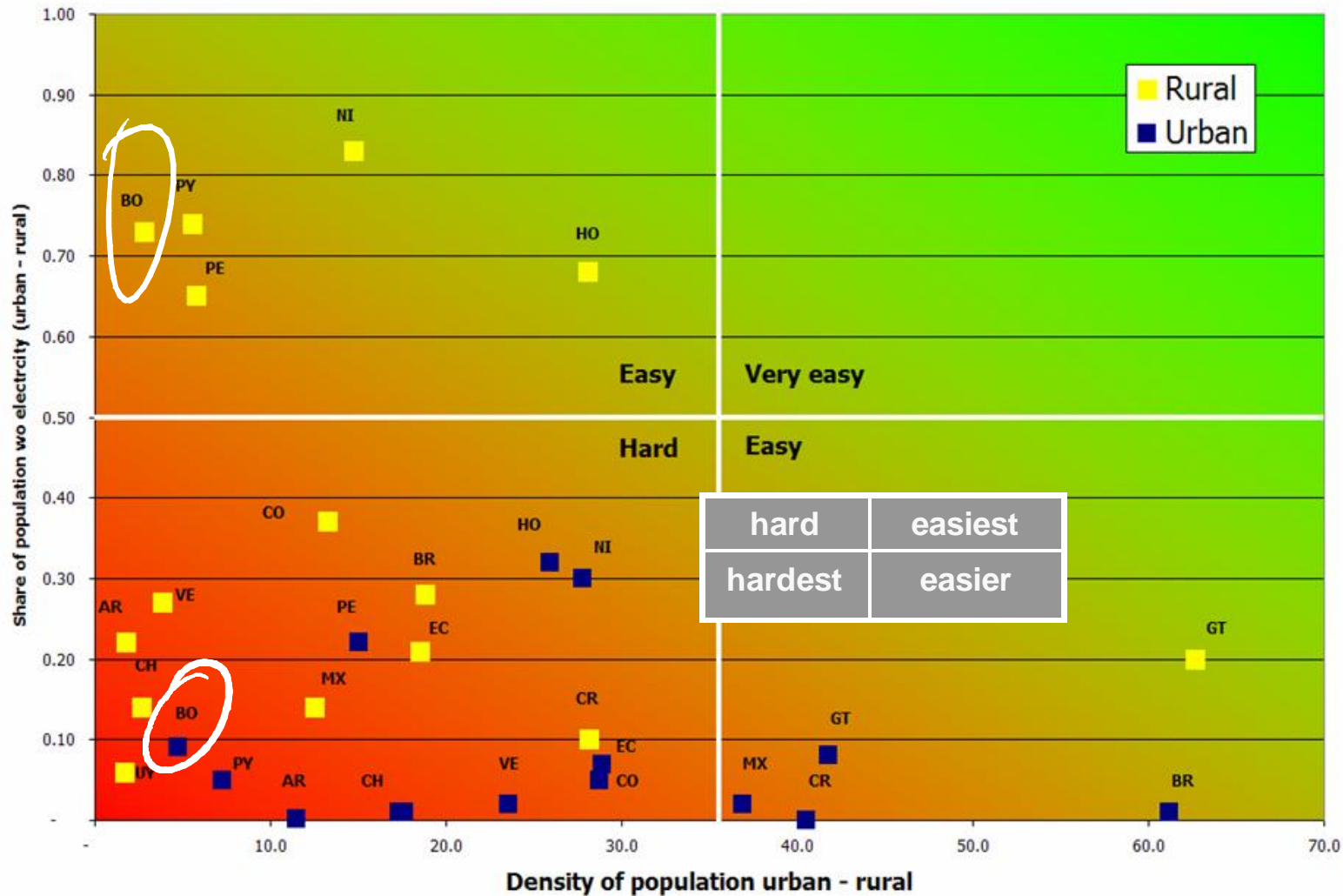
Dana Rysankova  
AEI Task Manager  
The World Bank

# Where is the market?



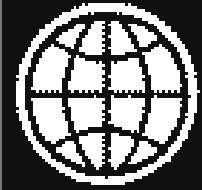
Closer to 100% → more offgrid

What's the remaining market ?



...and African countries?

# The State of Electrification in Africa



- People live **remote**
- Energy demand and income are **low**
- Supply costs and risk are **high**

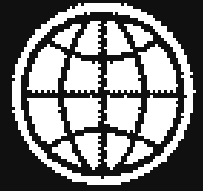
***Offgrid!***  
***Subsidies!***

Urban and Rural Electrification Rates by Region, 2000 (%)

	Urban	Rural	Total
North Africa	99.3	79.9	90.3
Sub-Sahara	51.3	7.5	22.6
<b>Africa</b>	<b>63.1</b>	<b>16.9</b>	<b>34.3</b>
South Asia	68.2	30.1	40.8
Latin America	98.0	51.5	86.6
East Asia/China	98.5	81.0	86.9
Middle East	98.5	76.6	91.1
<b>Developing countries</b>	<b>85.6</b>	<b>51.1</b>	<b>64.2</b>
<b>World</b>	<b>91.2</b>	<b>56.9</b>	<b>72.8</b>

***Lowest rural electrification rates worldwide!***

# Why are Subsidies and PSP related?



↳ PSP → needs capable private players → PSD → indirect subsidy!

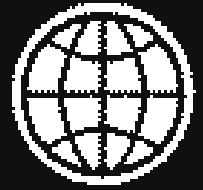
↳ PSP → profit! → need subsidies for unattractive markets!



↳ Subsidies are budget burden → need efficiency → PSP!

↳ Nascent market → initial subsidies → critical mass → Exit: PS alone!

# Bolivia: New SHS Medium Term Service Contracts



## Third way in between dealer + concession!

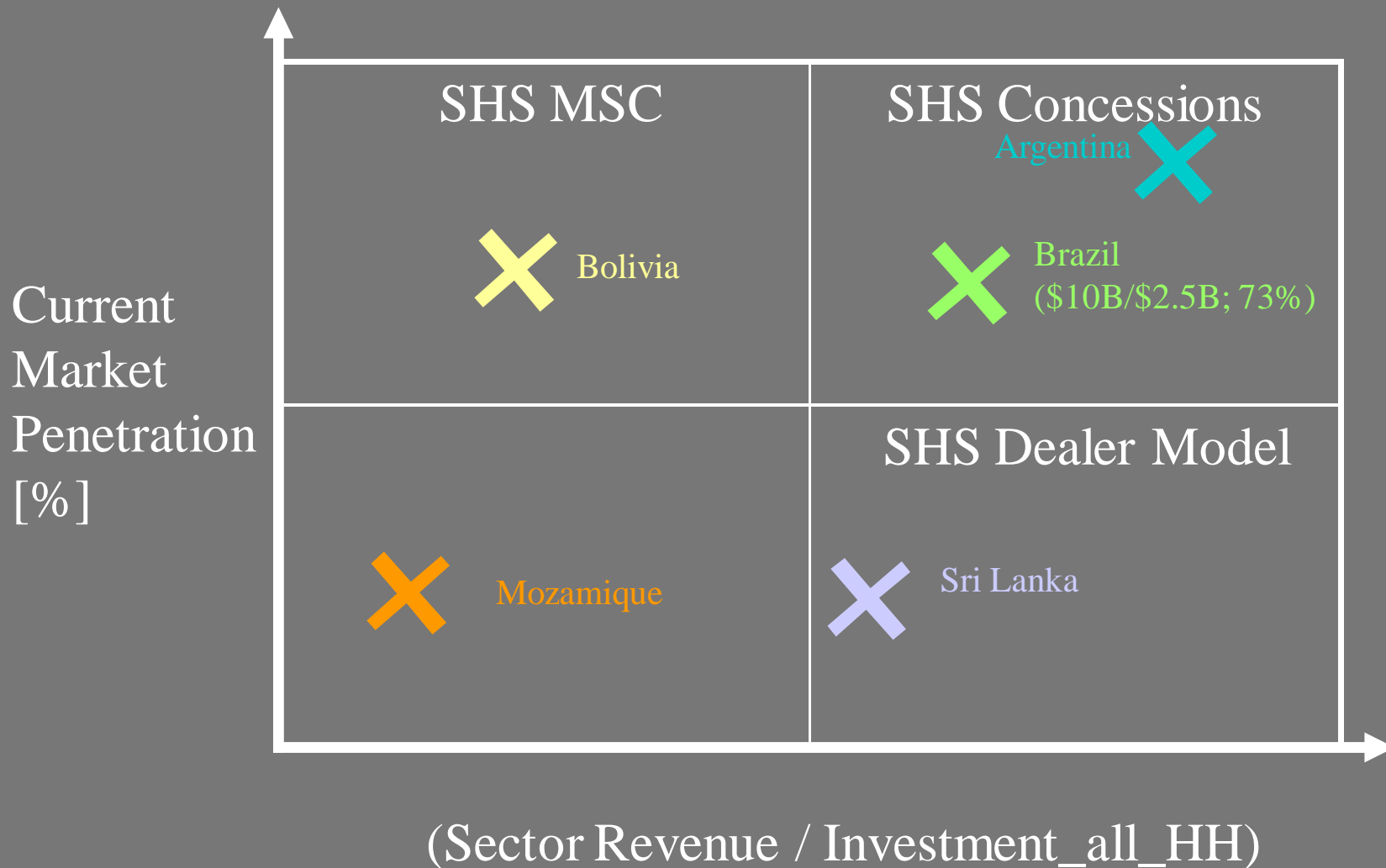
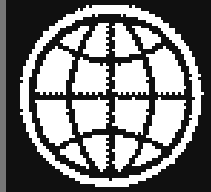
- US\$ 10M for 15,000+ SHS
- 14 areas (400-3000 SHS each)  
max. no. users at fixed subsidy
- Price caps and benchmarking  
prevent predatory pricing

## Medium Term Service Contracts

- Deep market penetration w/o  
problems of classical concession
- 3+4 years (limits risk exposure)
- OBA: choice (user, supplier), creativity, performance incentives
- Decentralized market development (supply, demand)
- Decentralized M&E (costs in remote areas)



# Bolivia: Looking for a SHS Model

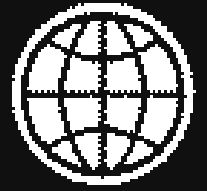


# Bolivia: Applying the Matrix

## B) Ex ante Performance Comparison of possible SHS Subsidy Mechanisms in Bolivia

	Mechanism 1	Mechanism 2	Mechanism 3	Mechanism 4	weight
Name	Classic Concession	IDTR MSC	UNDP Project Comp	Classic Dealer	
<b>Effectiveness</b>					
scalability	2	2	1	2	1
implementation speed	2	2	1	2	3
<b>Efficiency</b>					
Admin & Regulation simplicity	2	2	1	2	3
cream skimming danger					
cost to user	2	3	3	2	3
User choice (payment/size)	1	3	3	3	3
depth of local market penetration	2	2	2	2	2
<b>Sustainability</b>					
service sustainable	3	3	2	1	3
risk allocation sustainable	3	3	2	1	1
<b>Resilience</b>					
simplicity	3	2	1	2	2
Government experience with concept	3	3	2	1	2
<b>PSD</b>					
Innovation local market	1	2	2	3	2
PS has experience with model	2	1	2	2	1
Local PS survives / improves	2	3	3	3	1
find clients easily	2	2	2	3	1
<b>Politics</b>					
	n.a.	n.a.	n.a.	n.a.	
<b>TOTAL SCORE</b>	<b>59</b>	<b>68</b>	<b>54</b>	<b>57</b>	
Rank	2	1	4	3	

# Bolivia: New SHS Medium Term Service Contracts



## Targeting: self selection + geographic

- Area selection based on productive potential, grid plans and synergies with ICT
- Beyond Connection: Productive Uses and Training for SME and HH

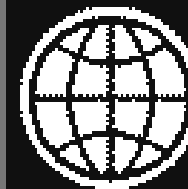
## Tenders need attention:

- Professional transaction advice
- Road show!

→ 6 bidders entered 30 bids in tough times...

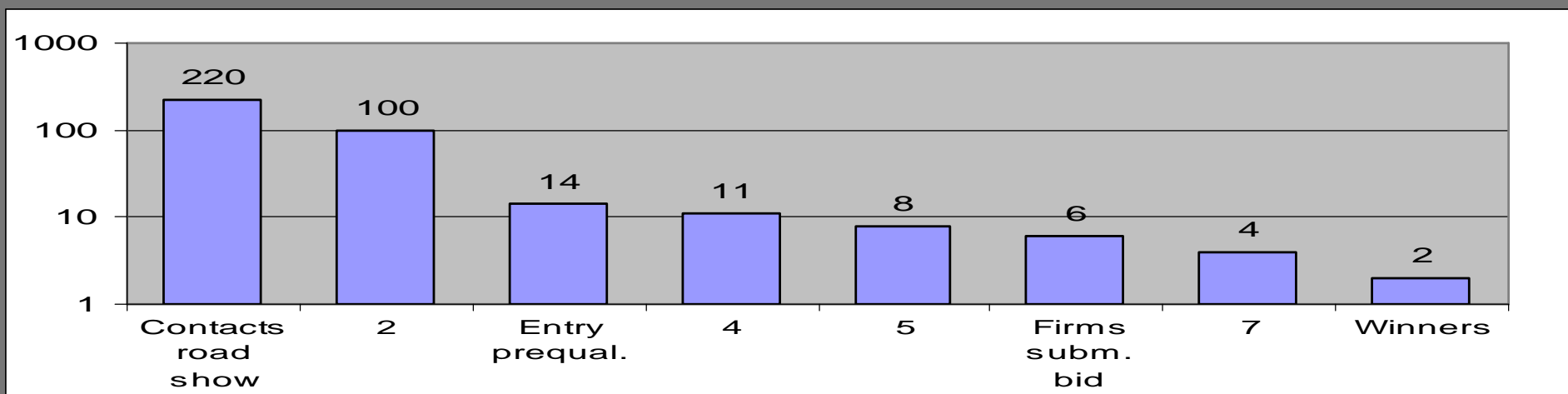


# Bolivia: New SHS Medium Term Service Contracts

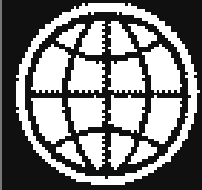


Road show:

Many bidders => bidding works!



# Bolivia: New SHS Medium Term Service Contracts



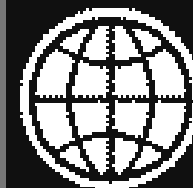
**Road show:**

**Many bidders => bidding works!**

## Bolivia SHS tender 2005: 14 lots - simultaneous - US\$10M

<b>contacts during road show</b>	<b>220</b>	<b>N</b>
firms with feedback	100	45% reduction 1
concordia asking for prequalification	14	
<b>prequalified consortia</b>	<b>11</b>	<b>11% reduction 2</b>
of these decided to enter bid:	8	
bidders who prepared bid	<b>6</b>	<b>55% reduction 3</b>
immediately disqualified bidders	2	
<b>qualified bidders</b>	<b>4</b>	<b>67% reduction 4</b>
bids per bidder	14, 10, 3, 3	
total bids	30	
<b>winning bidders</b>	<b>2</b>	<b>50% reduction 5</b>
areas won per winners	10, 4	
<b>GOB "gain" in US\$</b>	<b>2.489.294</b>	

# Bolivia: New SHS Medium Term Service Contracts



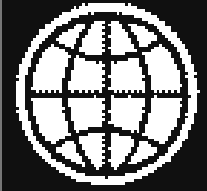
## Efficiency: Transaction Costs < Gain

### Bolivia IDTR - 2005 SHS Tender - Summary Results

area	minimum SHS	bids	winning bid	gain
1	1,401	3	1,822	30%
2	1,228	2	1,536	25%
3	1,590	3	2,147	35%
4	399	2	421	6%
5	1,112	2	1,501	35%
6	1,440	3	1,872	30%
7	921	2	1,198	30%
8	1,323	2	1,786	35%
9	712	2	962	35%
10	2,281	1	2,311	1%
11	353	3	477	35%
12	351	3	474	35%
13	597	1	696	17%
14	537	1	588	9%
	<b>14,245</b>		<b>17,791</b>	<b>25%</b>
	<i>GOB "gain" in US\$</i>		<i>2,489,294</i>	

**But: Winners' Curse**

# Tender reduced national SHS Prices



1. Reduced **40%** from Bolivia UNDP 2004
2. of this, **25%** from tender min in spite of PV shortage
3. Bolivia IDTR 2005 **lowest in LAC**

## Asia 2005

" China	50 Wp	\$300-400
" Bangladesh	50Wp	\$350
" Philippines	50Wp	\$400-500

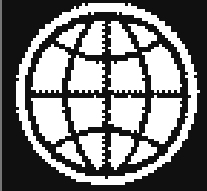


## LAC 2005 (incl. inst.)

" <b>Bolivia IDTR</b>	<b>50Wp</b>	<b>\$600</b>
" Nicaragua	50Wp	\$800
" Mexico	75Wp	\$1000
" Argentina	100Wp	\$1000



# SHS Prices in African countries

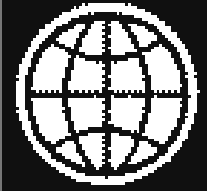


Country	Estimated SHS costs (50 Wp; USD)*	GNI / capita (USD / year)
Eritrea	650	160
Ethiopia	750	100
Kenya	550	350
Lesotho	1000	530
Somalia	>800	296
Sudan	650	340
Tanzania	850	270
Uganda	730	260
Zambia	1200	320
Zimbabwe	800	387
∅	<b>798</b>	<b>301</b>

\* Includes Solar panel, battery, 4 lights, charge controller, installation material, and installation.

Source: Data adopted from Moner-Girona et al. 2006

# OBA-Tender: Trade-offs!



- 1. Input-Output: project ó provider ó user
- 2. Well informed choice: creativity ó winner $\$$  curse (in/out)
- 3. Efficiency: control ó capital costs (15/80/5%)
- 4. Tender Document: watertight ó simple
- 5. Quality: equipment ó system ó service (Ah)
- 6. Risks: government ó operator ó user (battery)
- 7. Poll: Bank!

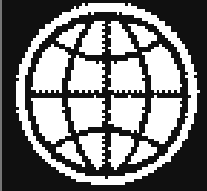
OBA Type: Project → Provider	Argentina	Nicaragua	Bolivia
Output VII ó Market development conditions			Green
Output VI ó Complementary services		Cyan	Green
Output V ó Environmental benefits	Yellow	Cyan	Green
Output IV ó User satisfaction			Light Green
Output III ó Application / use	Yellow	Cyan	Green
Output II ó Service quality		Cyan	Green
Output I ó Connection	Yellow	Cyan	Green

# Output Levels of SHS Programs



Inputs-->Outputs	Description	Example	Payment
Input1	Project's RE Component	SHS Component with x\$ financing	
Input2	Offgrid Service Provider operating	Concessionnaire selected	Upon signature
<b>Output I</b>	<b>SHS coverage increase</b>	<b>2000 SHS installed</b>	<b>OBA I: x% against installations achieved</b>
<b>Output II</b>	<b>Primary energy service quality good and user</b>	<b>2000 users with better &amp; cheaper el. service</b>	<b>OBA II: x% against aftersales performance</b>
Output III	Secondary energy-based services improved (MDG impact)	More reading hours, water pumped, lumenhours	OBA III difficult, feasible for water pumping.
Output IV	Replication - local market developed	Local Technicians trained, New service providers active	OBA IV: x% against local market development targets
<b>Output V</b>	<b>Global Environmental Benefit - e.g. reduce CO<sub>2</sub> emissions</b>	<b>x t of CO<sub>2</sub> abated over 20 years</b>	<b>OBA V: PCF/CDCF annual payment against CO<sub>2</sub> abated</b>
Output VI	Complementary Services improved (MDG impact)	SME trained, MFI service improved	OBA VI: Usually separate component with parallel OBA mechanism
Outcomes --> Development Goals	Quality of Life, Income, Employment, Productivity increased	100 new jobs in area	
Bank Mission	Poverty Alleviation	GDP & HDI increased	

# Balanced design for tough times

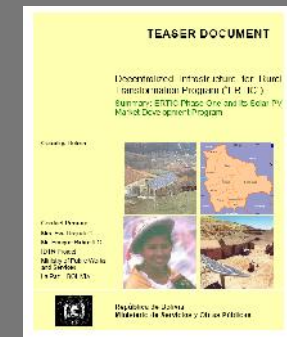


- **Need to Balance trade-offs!**

→ Partnership lasts if **fair deal for both sides!**

- **PPP: Bidders buy in!**

→ 30 bids in 2005 ÷ in spite of country climate

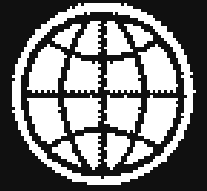


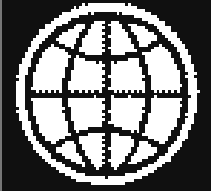
- **PPP: new Government accepts the model!**

→ 2006 mission confirms contracts + scale-up plans

÷ in spite of strong stance against PPI

# Conclusions





**Thank you for the attention!**