Engineering, Economics & Regulation of the Electric Power Sector

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Session 24 Module N

Universal access to electricity

Regulatory approaches to rural electrification

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One of the major obstacles to energy sustainability is the lack of universal access to modern energy services

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What is meant by "a sustainable energy model"?

- Tolerable environmental impact
- Adequate economic development
 - Security of supply
 - Lasting & dependable access to primary energy sources
 - Adequate capacity of production, transmission & distribution
 - Plus security in system operation and power delivery
 - Acceptable or even beneficial impact on economic competitiveness although not necessarily indefinite growth
- Socially acceptable
 - Reasonably fair universal access (worldwide) to modern forms of energy supply

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Regulatory reforms in the electricity sector & energy access to the poor

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*Electrification and Regulation: Principles and a Model Law.

K. Reiche, B. Tenenbaum, C. Torres; July 2006 WB Group

*Reforming Power Markets in Developing Countries: What Have We Learned?

J.E. Besant-Jones; September 2006 WB Group

*Energy for Sustainable Development:Policy Options for Africa

May 2007, UN Energy/Africa

*Regulatory Approaches to Rural Electrification and Renewable Energy:Case Studies from Six Developing countries

E. Martinot, K. Reiche; June, 2000, WB Group

Power sector reform & universal access

- Diverse studies have examined the impact of energy sector reforms on energy access for the poor in developing countries
 - The questions
 - How have energy policy reforms addressed the energy access by the poor & what have they contributed?

What are the proven energy options that lead to improved & more sustainable energy services for the poor in developing countries?

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Significant findings On the impact of regulatory reforms (1)

- Over the past two decades, developing countries have often implemented market-led energy sector reforms
 - Impetus was given to this approach by major international funding agencies, which often required restructuring as a condition for loans
 - The role of the government was meant to be reduced to creating and enabling the environment within which the private sector would take the initiative to provide services

Significant findings On the impact of regulatory reforms (2)

- Evidence has accumulated that in many cases the reforms have not produced the expected results
 - In particular, the poorer members of society remain excluded from modern energy services
- The situation is the result of the nature of the reforms introduced
 - Market-led reforms on improved efficiency, with a reduced role for governments & no direct program focused on increased access, cannot address the energy problems of the poor

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Significant findings On the impact of regulatory reforms (3)

- Safeguards should be introduced to avoid "cherry picking" by private investors
 - For example, electrification targets could be made a prerequisite for the purchase of attractive distribution rights
- Reforms should make sure that tariffs are affordable by the poor
 - Fixed charges & connection fees should be minimized

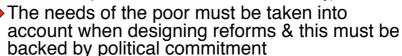
Significant findings Regulation for universal access (1)

- Rural electrification agencies should be autonomous & must have ambitious targets
 - Their governing boards should include representatives of the communities to be supplied to ensure that their concerns are properly addressed
- Countries whose reform is not at an advanced stage should make provisions for increased rural electrification before embarking on large scale privatization
- Avoid dependency from subsidies: if possible assign just once

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Significant findings Regulation for universal access (2)

- The following elements have been identified as necessary part of any reform if access to electricity services for the poor is to be improved
 - A political commitment to improve access to electricity by poor households
 - Ring-fencing of finances for electrification
 - Explicit focus on poor households
 - Focus on the sequencing of reforms
 - Consultations with poor households on the electrification process (successful projects are typically addressed to satisfy some basic needs of the people, e.g. get drinkable water, make possible some local industrial activity)



Significant findings Regulation for universal access (3)

- Characterization of electrification projects
 - Technology (from grid extension to off-grid)
 - Form of ownership
 - Delivery model (fee-for-service, dealers, hybrids)
 - Types of subsidies (connection vs. consumption; targeted vs. untargeted)
 - Process of selection of operators (competition in the market or for the market, by project, by cluster, by yardstick)
 a parameters to be bid (tariffs, connection charges, minimum required subsidies, number of new connected consumers)
 - Risk allocation (between consumers, suppliers & government)
 - Quality of service standards
 - Financing mechanisms

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Significant findings Regulation for universal access (4)

- Universal access is (or should be) the priority concern, not subordinated to sustainable development in the political agendas
- The use of renewable energy (isolated solar systems in particular) needs proper investigation
 - Affordability issues (difference between grid & off-grid developments)
 - Education, adequate training & information are crucial in realizing any expected benefits

Significant findings Regulation for universal access (5)

- The four basic regulatory principles (*)
 - 1. Adopt light handed & simplified regulation
 - Do not suffocate small entrepreneurs / entities with red tape
 - 2. The national or regional regulator should be allowed (or required) to "contract out" or delegate, either temporarily or permanently, regulatory tasks to other entities
 - Make use of specialized agencies whose only purpose is rural electrification

(*) K. Reiche et al. "Electrification & regulation", World Bank, 2006

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Significant findings Regulation for universal access (6)

- The four basic regulatory principles (cont.)
 - The regulator should be allowed to vary the nature of its regulation depending on the entity that is being regulated
 - Not the same regulatory treatment to a cooperative than to a for-profit private supplier
 - 4. Quality of service standards must be realistic, affordable, monitorable & enforceable
 - Standards should be based on consumers' preferences & capacity to pay

Significant findings Regulation for universal access (7)

- Involvement of private capital is critical → define a viable business model
 - Example: Chile. Governmental agency issues a request for proposals each year, indicating the total amount of subsidies to be awarded
 - Selection criteria: maximize the social impact of subsidy: largest number of connections & lowest cost for end user
 - The subsidy turns unattractive projects for the private firms into attractive ones
 - Once built, the new facilities must be treated as any other distribution facility of the winning firm

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Thank you for your attention

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