

# Wind /solar for socio-economic uplift of low income areas

UNDP Wind Energy Project/AEDB

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# The process

- What we are wanting to achieve
- How we can achieve it
- What the power can be used for

# UNDP / WEP

- **Objective** of UNDP/WEP is to create an enabling environment for development of commercial scale wind power projects.
- **Focussed areas**
  1. Availability of bankable wind energy data
  2. Policy refinement and tariff support program
  3. Financial instruments
  4. Knowledge and technology transfer

# Objectives of off-grid component

- Construct and support non-conventional off-grid rural energy systems, but in a sustainable way
- Provide a viable alternative to diesel generation
- Facilitate economic development in rural areas through targeted provision of electricity

# 'Must Haves'

- A clear vision of what is to be achieved – is it to be a quick fix or a long term strategy?
- Robust transmission and distribution
- Domestic power meters
- Solid and proven technology

# Viability

- Pakistan has viable wind resources, but not always where they are expected.
- Solar home systems are an excellent lighting technology for replacing kerosene, but are only step one on the journey
- When powering isolated communities for the first time, it is not only about \$ per kW compared to the cities

# Remote location wind power construction



# Containerised systems offer a modular approach



Parts, service and support need to be available.

- Built in well supported locations, then sent to remote area
- Reduces field risk and greatly speeds deployment
- Use high quality components to reduce failure rates
- Uses online system monitoring to support local operators

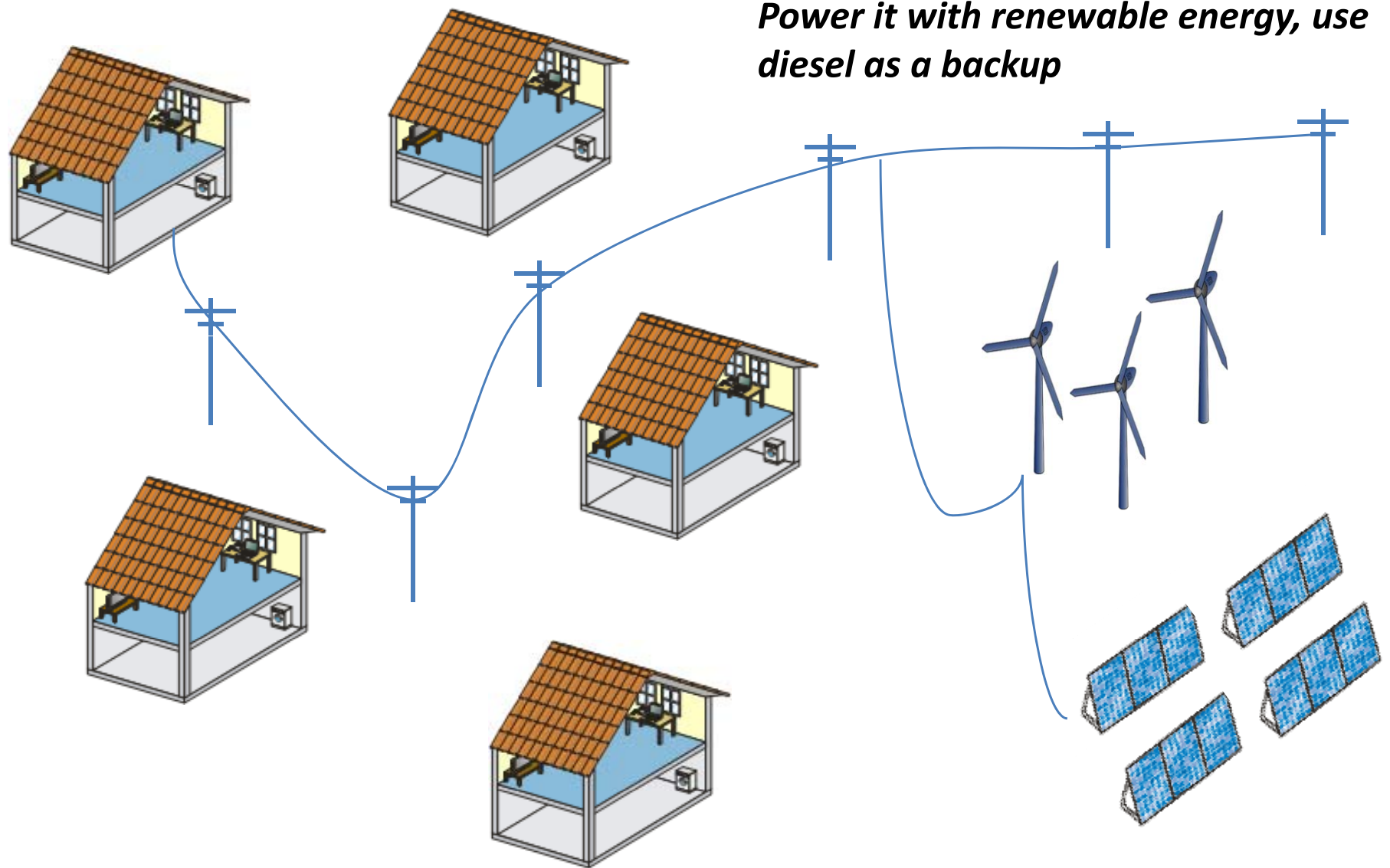
# Rural economic drivers

- Use the energy created to underpin activities that already drive the rural economy.
- Cold storage and irrigation for high value crops are able to be powered by stand alone solar or wind systems
- Simple but effective solar drying units have already been demonstrated with very good results.

# Rural power systems: How?

- Off grid power systems are mature, mainstream, and enduring technologies
- Pakistan's rural power network can be built in a series of islands and connected together later
- The embedded renewable energy units feed into the wider network after connection

# First, connect the village...





# Business Development

- **There needs to be an economic component.** If all we do is provide light, we just end up with better illuminated poverty
- **Generate local revenue.** Cold storage and irrigation can both be run on solar power
- **Create enduring solutions.** Diesel generators are a good quick solution, but the operating costs are unsustainable

# UNDP/WEP – Sindh initiative

- 85 households, combination of wind and solar with a diesel back-up. All houses are metered and the power network is to be of a high quality
- Small scale but high quality
- Provides a power network foundation that fits with future plans and won't become redundant
- Is pragmatic and allows for productive uses, including irrigation and cold storage as mentioned

# Power demands are low



# What is required?

- **Access to resources.** Long procurement lead times must be overcome
- **Mission orientated approach.** Define the objective, apply resources smartly
- **Innovative thinking.** Rely on pragmatic approaches to get the job done
- **Facilitate.** Allow the commercial sector scope to grow capacity while insisting on high standards



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