

IEEE Foundation



## India: New Initiatives in UP and Gujarat State

*Presentation for GHTC 2015 Smart Village Workshop,  
Seattle WA, October 8, 2015*

*Ray Larsen, IEEE Smart Village Co-Chair*



# India: New Initiatives in UP and Gujarat States

- ❑ Background
- ❑ First visit in January 2015
- ❑ Second visit in July 2015
- ❑ Recent progress in UP Community Surveys
- ❑ Plans for In-Country Manufacturing
- ❑ Next Steps

# Background 1

- April 2014--SunBlazer II rolled out at Chicago PES T&D Show
- Representatives from Mtekpro, Delhi, including Taiyab Ahmed, co-owner, very intrigued with partnership potential for rural India
- After their return, email arrived from Mtekpro Consulting Director Farid Khan
- Keenly interested for personal reasons; very strong ties with 45 villages formerly owned by family.

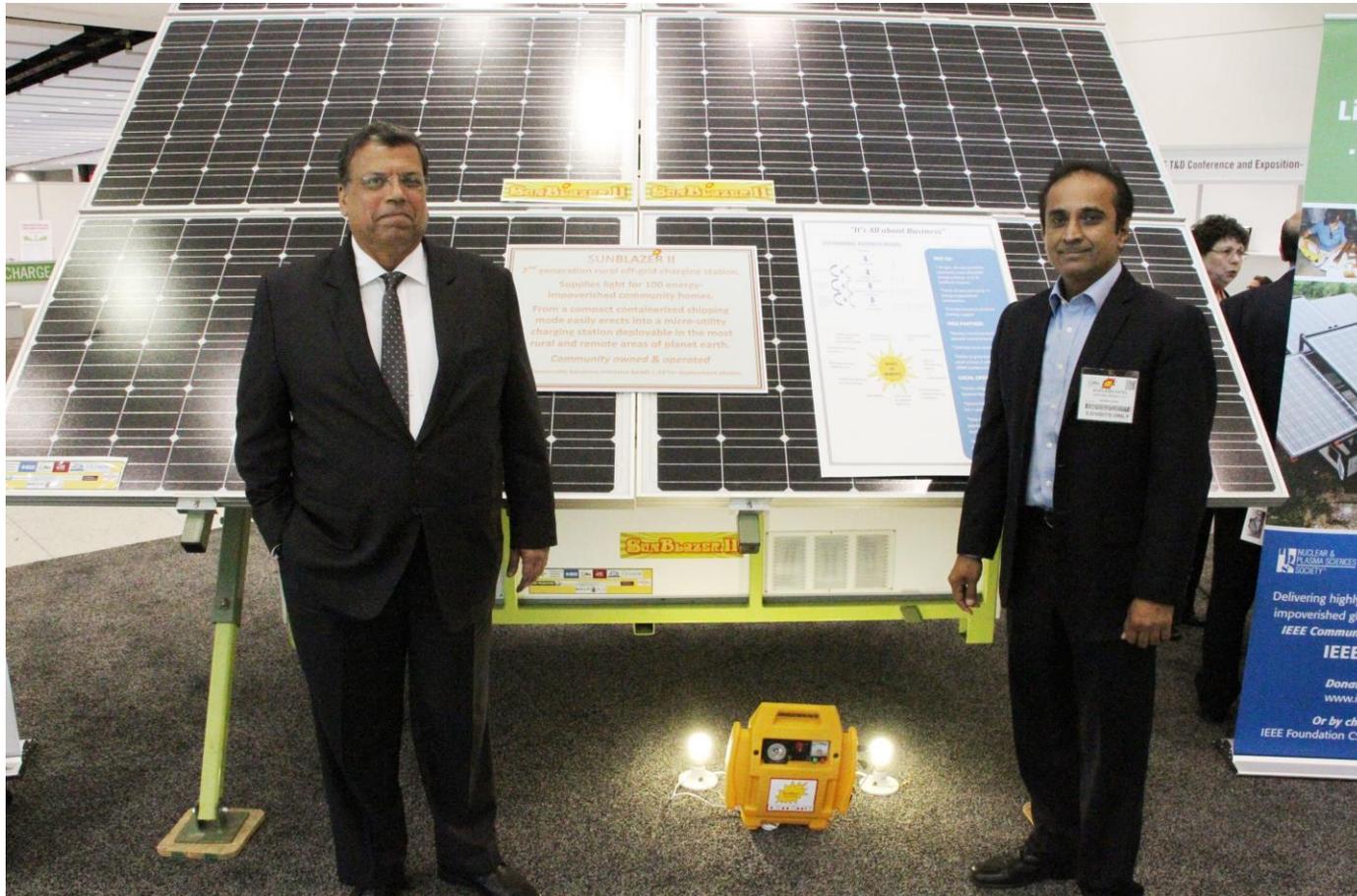
# SunBlazer II at Chicago



# Background 2

- July 2014 Director Khan, showed up at PES General Meeting and CSI (now Smart Village) Workshop in National Harbor near DC
- Spent many extra hours after workshop trying to form a strategy for rural India in UP, including Education
- Agreed to investigate further at own expense but did not wish to start a company
- Could not speak for Mtekpro which builds high voltage test equipment, provides services; worked on solar

# Taiyab Ahmed (L) and Marketing Director at Chicago



# Background 3

- Farid described electricity situation in rural Uttar Pradesh (UP) where he grew up, still maintains family home.
- Basically 45 villages on former family lands have no electricity, but also people have very limited ability to pay.
- Agreed that SunBlazer model may work and should investigate further

# Background 4

- Many questions followed as dialog continued by email
- Farid lives in UK; has consulting business but travels to India and visits village home, friends and colleagues
- Began discussions with government rural authorities as well as potential Smart Village business partners besides Mtekpro.
- Got favorable responses from government friends, urged that we pay a visit ASAP

# Farid Khan (R) at National Harbor with Mark Sickles & Albe Larsen



# First Visit January 2015

- In January 2014 opportunity arose to attend IEEE IEEMA Intellect Conference and Exhibition in Mumbai
- Intellect offered IEEE to organize a special multi-day track on Humanitarian Technology; invited as member of IEEE Humanitarian Ad Hoc
- Decided to leave a week earlier to visit Farid and contacts lined up in Delhi and Chennai
- Travelers Ray and Albe Larsen & Dan Wessner for Education, to visit contacts on in Delhi, Mumbai

# First Visit 2 - Delhi

- Results: Most interesting and informative were:
  - Safe Water Network, founded by Newman Foundation with extensive water purification systems in India near Delhi and in Ghana. Need 2-3 kW of electricity for pumping, piping water to 2-3 nearby villages; could branch into home solar
  - India Solar Electricity Company, government owned which has plans for multi-Gigawatts of solar generation
  - OMC Power, rock-star startup of solar replacing diesel for telecom towers, home lighting, plants up to 100kW
  - Mtekpro was co-host, remains interested in manufacturing

# First Visit 3 – Chennai, Mumbai

- Other district authorities were met in Chennai and Pondicherry; oddly most of them claimed there was no lack grid electricity in region. On the other hand NGOs are working in the region.
- Farid did not go to Mumbai but while we were in Delhi Robin Podmore was touring around Mumbai with people from ERDA (Electric Research and Development Association and TATA Power, the other end of the electricity spectrum; all are into solar

# First Visit 4 - Mumbai

- ERDA- Robin arranged for ERDA to make a prototype of a new style Universal Portable battery Kit (UPBK) for manufacturing in India. Tata is also interested in collaborating on finding local manufacturers; both are huge companies.
- Intellect Conference – The sessions were outstanding; Smart Village had a small booth presence under IEEE but made a big impact in the sessions. Dan held very fruitful education sessions with people from Academy in Kolkata.

# Second Visit July 2015

- Purpose was to focus for a week on Delhi and Uttar Pradesh which we were not able to connect with on our first visit but meanwhile became the main target of opportunity.
- Visit also included a 2-day stop in Mumbai and Ahmedabad, home of ERDA, hosted by Dr. Sanjay Patki, President of ERDA and very active in IEEE

# Second Visit Brief Summary

- Meetings: Delhi, Lucknow (Capital of UP) and Villages
  - Taiyab Ahmed of Mtekpro on possible future role in mfg.
  - The Founder and President who heads an NGO running about a hundred community centers to basically empower local people with internet resources of government programs of aid resources
  - OMC Power COO, CFO and Legal Counsel, on prospects of partnering in villages, possibly co-branding with IEEE; toured their 30kW plants in UP for a day, saw village lighting operation

# Second Visit Meetings 2

- Chief Minister of village district plus three elected officials overseeing 130-140 villages; gave detailed presentation, literature; all promised to discuss in villages
- Lucknow (Capital) Met with appointed official overseeing all major projects in UP, 220M people, 200,000 villages, many with little electricity, 20,000 with no electricity. Read our material, requested TWO follow-on meetings in Delhi to discuss “1MW Plan”, requested we make a proposal with inducement of government CSR funding.

# Second Visit Meetings 3

- Ahmedabad (1 hour flight north from Mumbai)
  - Hosted by Sanjay Patik, met with three department head PhD engineers, all keen to form a unit to explore potential for Gujarat rural electrification
  - Also met with local government official responsible for Gujarat government CSR funding for 20 minutes; he offered the a]names of three villages to explore
  - Mad presentation on requirements for new injection molded prototype UPBK and they await our RFP

# Second Visit Meetings 4

- Mumbai – further meeting arranged by Sanjay
  - At the Westin in Mumbai met with a group of five people: The President of Gram Power who has a very successful small forest village electrification model; a colleague who heads a new company specializing in raising CSR funding, and three young gentlemen, none of whom spoke English, who were village chiefs interested in our collaboration to get electricity and pumping power to their very poor villages. Education is also a huge concern as schools are remote and only go to 5<sup>th</sup> grade..

# Summary Visit 2

- We have a number of excellent opportunities that we have not had time to explore or develop further. We have been concentrating on UP. However these others should be explored also because they have high visibility since Gujarat is the home of the Prime Minister and many key politicians who control CSR funding.

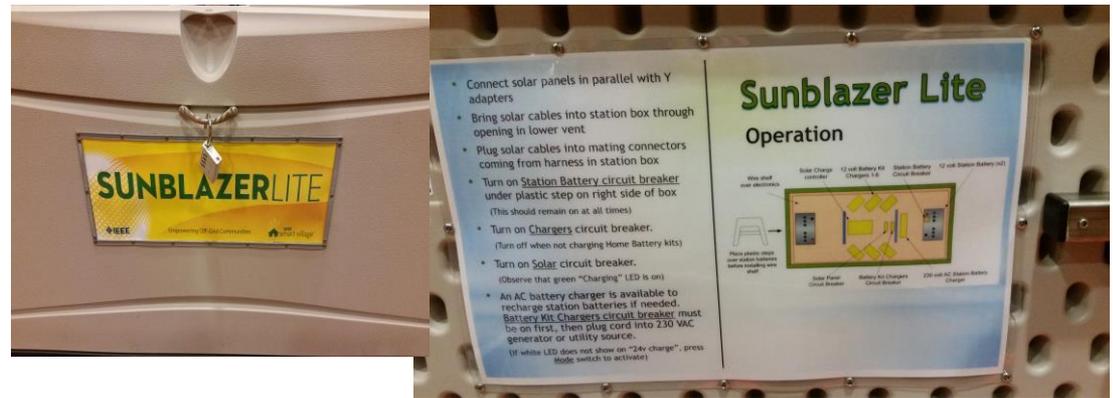
# Recent progress in UP Community Surveys

- We have kept up the pressure on Farid to organize comprehensive surveys starting with 5 villages in UP in month of September, Villages 600-1000 homes each!
- Initial task was accomplished with team leaders that Farid recruited and trained; data are being compiled
- In addition Farid identified potential key NGO currently working in rural sanitation, another key area of concern for development; we owe immediate follow-up

# Plans for In-Country Manufacturing

- In-country manufacturing in India is essential
- All key components are available in-country and assembly plants can be another job-creating business for communities.
- Farid has identified two companies who can easily fabricate SunBlazers for initial supply
- ERDA will integrate the UPBK design from existing work by Nextek, Shammyu and Riaud et fils; and suggest initial manufacturers

# SunBlazer Lite & PBK (July 2015)



- Connect solar panels in parallel with Y adapters
- Bring solar cables into station box through opening in lower vent
- Plug solar cables into mating connectors coming from harness in station box
- Turn on Station Battery circuit breaker under plastic step on right side of box (This should remain on at all times)
- Turn on Chargers circuit breaker. (Turn off when not charging Home Battery kits)
- Turn on Solar circuit breaker. (Observe that green "Charging" LED is on)
- An AC battery charger is available to recharge station batteries if needed. Battery Kit Chargers circuit breaker must be on first, then plug cord into 230 VAC generator or utility source. (If white LED does not show on "24v charge", press Mode switch to activate)



# Next Steps

- Goal is to initiate manufacturing and first Pilots in India in 2015
- Surveys include ALL electrical loads, not just home lighting. Results will be used to develop optimal programs with strong community input, ability to pay
- We need significant new manpower, especially if we seriously consider taking a stimulus role in the “1MW Plan” requested by the top project official in UP.