

Comunidad Solar R9

# The Solar Community Experience for the IEEE Region 9

Palma Behnke, R.<sup>a,e</sup>, Núñez Mata, O.<sup>b</sup>, Montedónico, M.<sup>a,e</sup>, Jiménez Estévez, G.<sup>c,e</sup>, Alemán, M.<sup>d</sup>

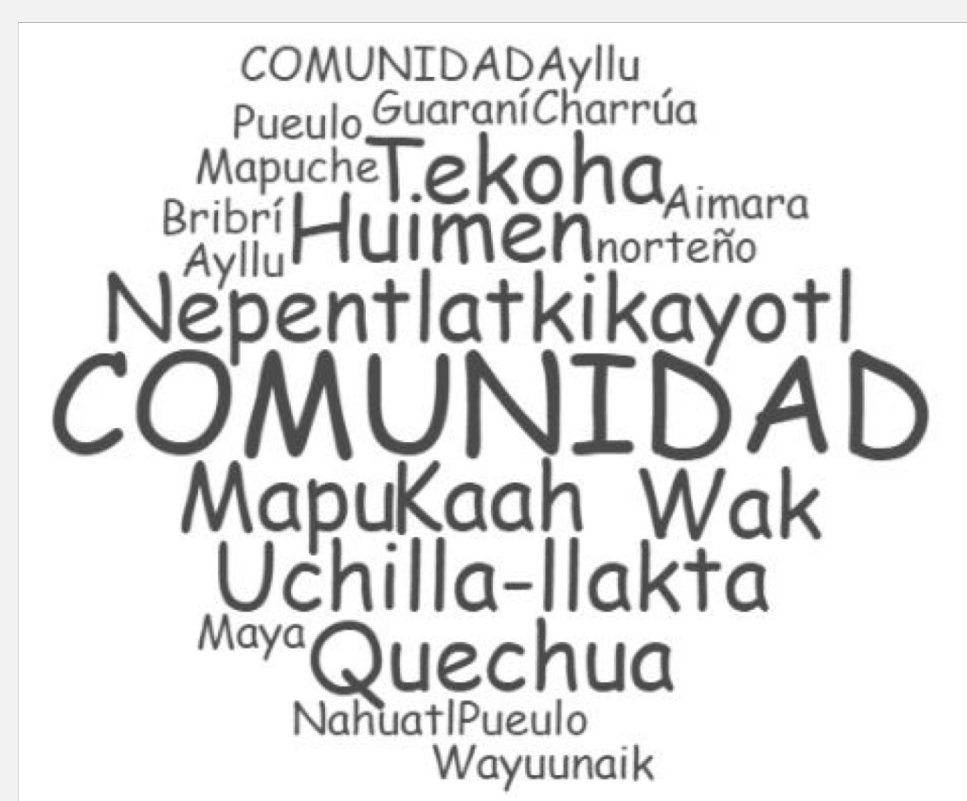
<sup>a</sup> Department of Electric Engineering, Energy Center, University of Chile, Santiago, Chile

<sup>b</sup> University of Costa Rica, San Pedro, Costa Rica

<sup>c</sup> Department of Electric and Electronics Engineering, Universidad de los Andes, Bogotá, Colombia

<sup>d</sup> IEEE Section Nicaragua, Managua, Nicaragua

<sup>e</sup> Solar Energy Research Center, Santiago, Chile

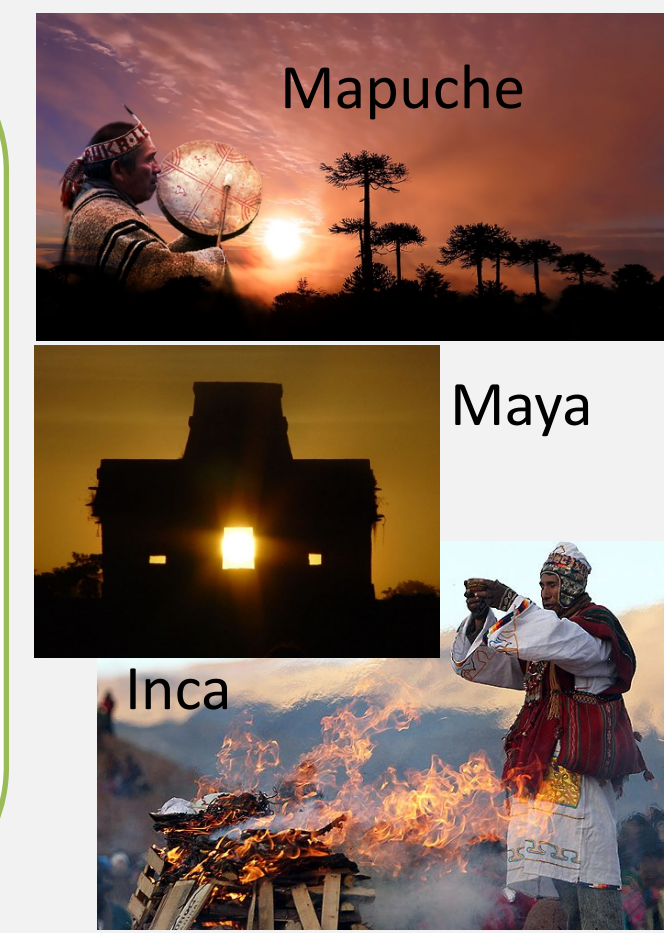


COMMUNITY written in different indigenous languages



## Introduction-Motivation

The native cultures of **Latin America** observed that life was reborn after winter (plants bloomed in spring and bore fruit in summer). The **Sun** gave its heat and energy to all living forms. Since then, indigenous peoples pay respect and recognition to the Sun as the main source of life. For this reason, we focus on promoting the **integration** of Latin America (**IEEE-R9**) around **solar energy**, and its applications, as a source of development for the region, keeping the ancestral vision alive by the **sun**.



## The Solar Community R9 Idea

Communities around the world are seeking ways to meet their **energy requirements** with clean, safe, resilient, and reliable energy systems. One way is through the use of **solar energy** at community level.

This option has received much attention due to the following: *i)* reduction in the cost of the solar technologies; *ii)* novel control and communication approaches; *iii)* microgrids concepts; *iv)* co-construction approaches among project stakeholders. In fact, the main challenge of promoting energy solar solutions is to **ensure sustainability**.

Efforts to define, promote, categorize, intervene, and assess the **energy solar projects in communities** are necessary but must incorporate multi-criteria approaches. With the support of IEEE and several institutions and volunteers, a cooperation network was created to share experiences and to promote sustainable solutions in **communities of Latin America**.

## Community Solar development

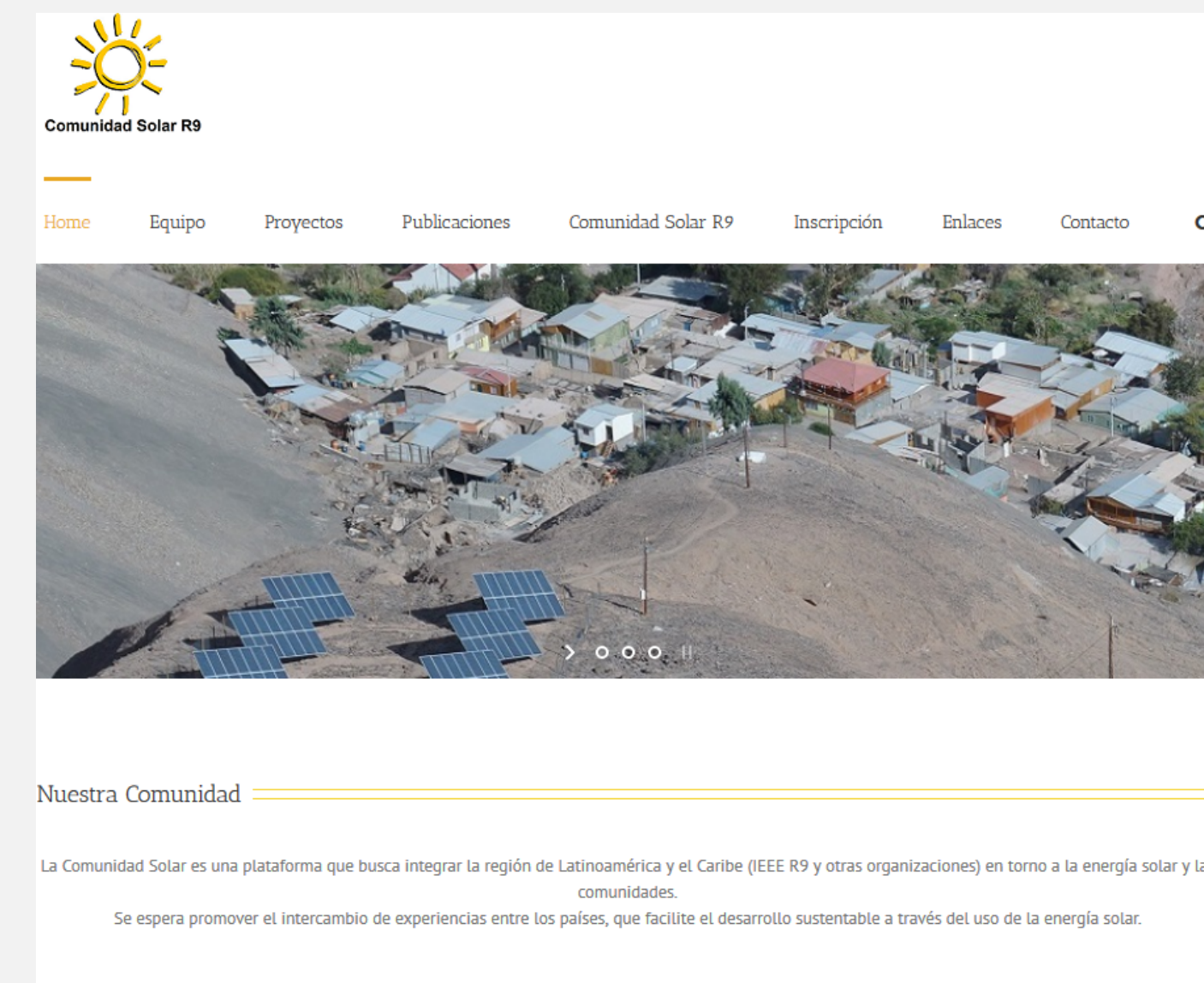
The idea of energy production and consumption at the **community level** leads to energy production systems radically different from the standard (*small scale, locally appropriate, environmentally and socially benign, centered in benefits to the community and not only to investors*). However, the adoption of new technologies in the communities, is necessarily a **social and cultural transformation** that implies adaptation to a new context.

This process is **co-created** by the interaction between the intervened and interveners. Thus, a sustainable technology project should be aimed to preserve basic functions of the communal system, while limiting the evolution of unsustainable practices.

With this approach, the **Solar Community** was created as an open space for the exchange of experiences between the countries of Latin America, which facilitates sustainable development with the use of solar energy.

Website:

[www.comunidadesolar.cl](http://www.comunidadesolar.cl)



## Contact

EMAIL:  
Oscar Núñez Mata  
[oscar.nunezmata@ucr.ac.cr](mailto:oscar.nunezmata@ucr.ac.cr)  
Rodrigo Palma  
[rodpalma@cec.uchile.cl](mailto:rodpalma@cec.uchile.cl)  
Guillermo Jiménez  
[ga.jimenez@uniandes.edu.co](mailto:ga.jimenez@uniandes.edu.co)

## Experiences



- Plenary Sessions
- Projects
- Publications
- Failure reports

The **Solar Community R9** was launched at the IEEE CONCAPAN 2016 convention, held in San José, Costa Rica, through a plenary session, called: "*Opportunities and challenges for the integration of solar energy in Latin American communities*".

Since then, different sessions have been held and participated in discussions and projects.



## Lessons learned

**Key findings** in the different activities held during these years:

- *Solar Community opens* a channel to exchange experiences, designs and learnings.
- It is necessary to consider and analyze the link among *water, energy* (including solar), and *food*.
- Removal of the barriers as a key driver for the *Solar Community objectives*.
- *Main recommendations*: expectations management, clear business models, commitment of the communities in operation and maintenance of the systems, documentation of the process.



Symposium on  
Microgrids,  
2019 - Fort  
Collins, CO, USA