

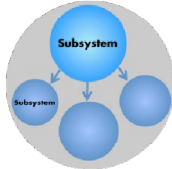


# Open Energy Systems

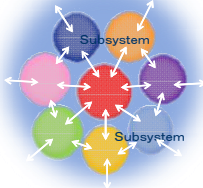
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## Open Energy Systems(OES)

<A solution for global energy and sustainability problems>



**Conventional system**  
*Top-down power transmission based on large scale power generation*



**OES**  
*Bottom-up and interconnection based on unstable distributed power sources*



## FIFA World Cup 2010 Public Viewing


- May 2010 and June-July 2010 @ Ghana
- Flexible Solar Panels and Li-Ion Batteries
- In cooperation with JICA HIV/AIDS Campaign







## JICA Project


Mobile Phone Charging Business using Solar Panel and Batteries  
BOP Business F/S Project, Ghana (2011.4~2014.3)  
Funded by JICA (Japan International Cooperation Agency)




**A.** Mobile phone charging service using power generator



**B.** Mobile phone charging service using Geo System at Kpachelo, Ghana




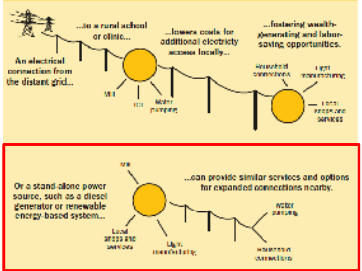
**C.** F/S in non-electrified locations



**D.** Mobile phone charging and video viewing services using Geo System at Puruya, Ghana

## On Grid or Off Grid







### Energy Security

**Perspectives on a Hyperconnected World**  
Insights from the Science of Complexity

Our world is continuously faced with unexpected events of great consequences. Recall the financial crisis of 2007 -2008, the Arab spring that erupted in December 2010 or the Tohoku earthquake in March 2011 that resulted in the nuclear disaster in Fukushima. ... They have shaped our world and will continue to do so. ... and although we will not know where the next one will come from or how it will affect us, we do know - because of the growing number of people in the world and the growing density of connections between them - that more people will be impacted by it.

**The big challenge for public and private leaders is:**  
**“To prepare our natural, social and artificial systems to be able to quickly recover from the next unexpected event”.**

