

Progress in Solar Energy to Address the Energy Crisis

20 - 23 September 2022, Istanbul, Turkey

International Conference and Exhibition on Renewables, “Technologies and Options for Securing Energy & Food Flows in View of the Ukrainian Crisis.”

This grassroots, but earnest, event is being hosted by the Internationales Forschungszentrum für Erneuerbare Energien, IFEED, e.V. in Germany, Selçuk Üniversitesi, Turkey and the Nordic Folkecenter for Renewable Energy, Denmark.

Progress in Solar Energy to Address the Energy Crisis,

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Abstract:

The war in Ukraine has disrupted both energy and food production & distribution worldwide. The most vulnerable live in less developed countries, many of which are on the African continent. Yet there are solar energy resources available in those places that will allow energy and food sovereignty in situ. Here, we present a summary of just some of the tools and solar technologies that can be implemented in the near and medium term. There is now a diversity of available photovoltaic (PV) products and form factors. This is exemplified by a multitude of innovations in Agriphotovoltaics. There are also numerous advances in the production of fuels using approaches such as Concentrated Solar Power, CSP, and some of these are at the kW and pilot plant stages. Solar disinfection using a host of techniques, including novel ambient temperature steam generation, can provide a more reliable water source, a challenge made more urgent due to extreme weather events, exacerbated by climate change, as well as human conflicts. Traditional solar thermal technologies can be deployed, and can continue to be a means by which natural gas disruptions can be partially mitigated. Finally, higher prices for fossil fuel-based electricity allow for more frequent cleaning of soiled PV and CSP systems to extract all available energy converted by solar technologies to make it available for those who need it the most. The discussion and recommendations are

supported by the citing of recent peer reviewed journal articles, as well as reports from major laboratories and institutes world-wide. Although solar energy cannot immediately be brought to a sufficient scale to fully mitigate the current energy and food crisis, the presentation highlights tangible and practical solutions that can rapidly build a robust path towards energy availability and equity for all.

[The presenter and co-authors did not attend the conference in person.]

LinkedIn Post on the conference is here:

https://www.linkedin.com/posts/gregpsmestadphd_folkecentereventsnet-activity-6969437108335779840-oKyr?utm

You can also find it via Greg Smestad's LinkedIn profile page by looking at "Activity":

<https://www.linkedin.com/in/gregpsmestadphd/>

The conference brochure is here at this Website:

http://www.ifeed.org/index_EN.html

Transcript:

Slide 1

Hello, greetings to you all. My name is Dr. Greg P. Smestad. Together with my colleagues and friends, [Drs.] Ivan Gordon and Leonardo Micheli, I would like to present, Progress in Solar Energy to Address the Energy Crisis. I'd like to thank IFEED, Selçuk University and the Nordic Folk Center for Renewable Energy, and all of their collaborators for inviting me to this talk and this opportunity.

Slide 2

Here is the agenda: I will try to address the context in terms of the Less Developed Countries of the world who will suffer most under the current energy & food crisis. I will try to emphasize technical readiness of solar solutions, that is [sic] here and now, implemented in the next 6, 9, [12], 24 months. Focusing on Africa and its solar resource an example, we can look at tools such as the European Commission's PVGIS. I can share with you PV diversity on the market today that can help address the crisis, in particular Agricultural Photovoltaics and other form factors. Worth mentioning is the recent progress and scale-up of concentrator solar power

[CSP] fuels; also the need for solar disinfection to produce water for those who need it during this crisis. Mentioning in that context some work on novel solar-produced steam which is very promising. Not neglecting solar thermal in this discussion, I'll talk about solar heat and the collectors that can be used even in the winter. And last, the importance of addressing soiling of solar as an example of something that can be done here and now in this context.

More will be posted and available soon.

Contact the authors, via the email address for Dr. Smestad found on the web page for Sol Ideas Technology Development, to make comments, raise questions or for further details.

<https://www.solideas.com/bio/bio.html>