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c/o Frank Bohne,  
Director, Kronos Solar Projects GmbH  
Petersplatz 10  
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To whom it may concern

Bayerische Landesanstalt für Landwirtschaft

**Institut für Ökologischen Landbau,  
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Ihr Zeichen: E-Mail vom 10.01.2014  
Unser Zeichen: 7308/246

Datum: 13.01.2014

## **pollutants in photovoltaic power plants**

Dear Sir or Madam,

the solar park developer Kronos Solar Projects GmbH has requested for an assessment of potential pollution run-off from crystalline solar PV panels in large-scale solar parks.

In 2011 the `Bayerische Landesanstalt für Landwirtschaft` (Bavarian State Research Center for Agriculture), a public institute of the state of Bavaria has made a literature study about potential pollution caused by solar farms on agricultural land (<http://www.bodenschutzdigital.de/ZBOS.03.2011.069>).

This study concluded that the potential of a pollution run-off from intact crystalline solar PV panels is considered very low. Due to the encapsulated design of the panels, the stationary panels will not cause any pollution-run-off.

Only in instances in which panels have been damaged by extraordinary forces, such as fire, hail or vandalism, a potential run-off of small amounts of silver, tin or lead particles may be possible and therefore it is suggested to replace the panels as a preventative measure for soil protection. This is however also in the interest of the solar park operator, as damaged panels do not produce energy.

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It is important to note that solar panels are designed to resist usual natural forces, such as sun, thunderstorms, and hail.

In regards to other components of solar parks, such as ground-mounted systems, inverters and transformers, and electrical components, its potential of a pollution run-off is considered very low.

I want to emphasize that we are not aware, or have seen any past cases in which crystalline intact solar panels have caused pollution run-off.

Best Regards,

A handwritten signature in blue ink, appearing to read "Titus Ebert". The signature is stylized and cursive.

M. Sc. Titus Ebert,

Freising, Germany, January 14th 2014