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# Part 1 - Summary of Solar Energy Concerns

Let's put aside the marketing hype, and look at some of the key considerations regarding the promotion and subsidizing of industrial solar energy projects:

- a) Solar projects **rarely** have **meaningful state rules or regulations** to abide by (*note: a similar situation also exists for another current political favorite: wind energy*);
- b) Solar lobbyists often attempt to further **handicap local communities** from enacting meaningful regulations, by advocating an [expedited approval process](#);
- c) Solar projects require [100% backup](#), so **we must pay for twice the energy sources**;
- d) Solar projects require [100% backup](#), which is typically from gas, so that needs to be factored in when discussing cost, environmental impact, CO2 reduction, etc.;
- e) Solar facilities are likely a **net energy sink** (e.g., see this [study](#));
- f) When a comprehensive and objective financial analysis is done, solar is **5x± the cost of conventional electrical energy sources** (e.g., [here](#), [here](#), [here](#), [here](#) & [here](#));
- g) Despite states shelling out **Billions of dollars to benefit the solar industry**, no scientific, thorough, objective study has shown that solar is a net societal benefit.
- h) See this Study: [Built Solar Facilities are Chronically Underperforming](#);
- i) Solar has a high potential for **substantial environmental harm**, like polluting aquifers with **carcinogens** (e.g., [here](#), [here](#), [here](#), [here](#), and [here](#)) [*also see Part 2*];
- j) Solar will likely **reduce nearby home values** (e.g., [here](#), [here](#), and [here](#));
- k) Solar can take prime farmland out of production (e.g., [here](#)), which results in loss of jobs, loss of farm equipment & supplies sold, and a loss of consumer produce;
- l) Solar facilities with lithium batteries can be a major hazard (e.g., [here](#) and [here](#));
- m) Solar facilities can be problematic to nearby airports (e.g., [FAA](#), [study](#) & [study](#));
- n) Solar results in an **enormous toxic disposal problem** for the state (e.g., [here](#), [here](#), [here](#), and [here](#)) — *who will pay for that and where are the state rules about this?*
- o) Solar has no scientifically-proven consequential net reduction of climate change! Some studies (e.g., [here](#), [here](#), [here](#), [here](#), [here](#), and [here](#)) conclude that there's good evidence that solar facilities make climate change **worse**; *and*
- p) Going solar likely **benefits Communist China** (e.g., [here](#), [here](#), and [here](#)).

*Some additional sample relevant information about solar energy:*

[Uncle Sam's Solar Racket — a Cesspool of Waste and Corruption](#)

[Wind and Solar Are Intermittent and Incapable of Meeting Our Needs](#)

[Why Wind and Solar Energy are Doomed to Failure](#)

[Surprising Disadvantages of Using Solar Energy](#)

[Leaders Hopelessly Misguided on Wind and Solar Power](#)

Study: [The More Solar on the Grid, the Less Value it Has](#)

[Cost comparison: actual Nuclear vs Solar facilities](#)

## Part 2 - Solar Panel Toxicity Overview

When potential solar project host communities ask solar developers what toxic materials are in their solar panels, they typically say that *they are not aware of any*.

Although that may seem evasive, it could be an accurate response as:

- a) most solar panels come from China,
- b) China does not have anywhere near the [environmental concern](#) that we do, *and*
- c) Chinese suppliers are unlikely to divulge negative information about their products.

The takeaway is: **buyer beware**. In other words, potential host communities for industrial solar facilities should be aware of what we *do* know — and then act accordingly to fully protect their community.

*So what DO we know?* We know that these are some of the toxic (some carcinogenic) chemicals that have been identified as likely being in solar panels (*click on the links to get an idea of what some of the adverse health consequences are*):

[Per- and Polyfluoroalkyl Substances](#) (PFAs) (also see [here](#) and [here](#))

[Perfluorooctane sulphonate](#) (PFOS)

[Polytetrafluoroethylene](#) (PTFE)

[Fluorinated Ethylene](#) (FEP)

[Cadmium Telluride](#)

[Copper Indium Selenide](#)

[Cadmium Gallium diselenide](#)

[Copper Indium Gallium diselenide](#)

[Silicon Tetrachloride](#)

[Hexafluoroethane](#)

[Polyvinyl Fluoride](#)

Also, here is a [basic explanation](#) of the silicon manufacturing part of solar panels. The following are some *additional* toxic chemicals that have been identified as possibly being involved in the fabrication of solar panels, which might end up in the finished product:

Hydrogen chloride

Silicon tetrachloride

Hydrochloric acid

Sulfuric acid

Nitric acid

Sulfuric acid

Polycyclic aromatic hydrocarbons

Formaldehyde

Arsine gas

Trichlorosilane gas

Silane gas

Sulfur dioxide

Sulfur hexafluoride

Sodium hydroxide

Potassium hydroxide

Lead

Additionally, some solar projects include Lithium battery facilities. These represent an additional array of toxic chemical hazards and fire risks (e.g., see [here](#)).

Now that they have been alerted to the severity of solar panel toxicity and fire issues, **what do conscientious states and communities do to protect their citizens and ecosystems from these life-threatening chemicals?**

With solar, there are three major concerns with these toxic materials:

- a) Over the 20± year estimated life of solar panels, how do states and local communities make sure that these chemicals will not migrate from solar panels into soils and local aquifers? *and*
- b) How will fires at solar facilities be quickly and safely extinguished, before toxic carcinogenic materials are blown in the wind miles away?
- c) How will solar panels with these materials be safely disposed of at the end of their useful life, and who will pay for it? (Note: *these panels will **not** biodegrade, plus it is extremely difficult to recycle very much of them.*)

The answers to these questions *should* primarily be found in **state laws**, and secondarily in local ordinances (esp where state laws are deficient).

It is unconscionable to have state legislators **mandate** solar projects (e.g., via [Renewable Portfolio Standards](#) [RPS] legislation), yet not likewise pass accompanying appropriate legislation to protect their citizens (and environment) from the well-documented toxic threats that can result from their RPS.

Additionally, for state legislators to throw the responsibility of protecting citizens and the environment onto the backs of local representatives, is beyond unreasonable. In North Carolina, for example, what sense does it make to require that a hundred counties must get educated on the impacts of these toxic materials, and then write (and pass) a hundred local ordinances that try to address that threat to their communities?

*For more information about industrial solar (including a **Plan of Action plus a Model Local Ordinance**) go [here](#). For other articles and reports go [here](#), pick a year and search over "solar".*

For any corrections or suggestions for improvement, please contact the undersigned.

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