# Foreword

It's amazing how large projects can come from the smallest of beginnings: This complex journey in solar power all sprang forth from a perceived need to be able to solar power my Team's issued repeaters in the wake of the very real possibility of there not being enough batteries, battery capacity, and solar panels available.

Fortunately, the Fire Season of 2022 went very well for us, and we only needed part of what we had built up. In 2023, we have already had to use our personal cache! It's always better to be over prepared, than to be caught short.

The process of investigating what we would need caused a lot of questions to be asked, which led to experiments that found out what worked and what didn't, which then led to even wider ranging questions on solar power, panels, batteries, controllers, and inverters.

This reached a critical mass and is still spiraling out: This paper is the first installment in what will ultimately become a book on solar power (Sustainable Scalable Power at Incidents). I'm publishing it piecemeal because it's important to get the information out *now*, during Fire season when it's needed, instead of waiting for the full work to be done.

This is not meant to be an end, but to be a beginning, a work to be used as a foundation to be built upon for the future, to be updated as needed.

The next installment will be Electrical Accommodation, or using solar power to run CPAP machines at Incidents.

I welcome your ideas and feedback. We're definitely in the Edison stage of this process, and the work can use a lot of cleaning up and fine polish. I appreciate your forbearance!

I'm also curious of what others are doing, and welcome your ideas.

Feel free to reach out to me at tomherman427@gmail.com.

The whole idea behind this research is to be able to come up with solar power systems that can be built mainly from locally available items, that is scalable in size up and down to be able to meet the rapidly changing demands experienced on Incidents, and to be so simple that literally anyone can put it together.

This is the concept of Scalable Power.

I am grateful to those people and organizations that assisted in this work, or allowed me time to be able to go out on Fire assignments:

-Thank you to my supervisors for your encouragement and guidance!
-NW IMT 10 Incident Commander Al Lawson: For his encouragement and allowing me to roll out projects while we were out on Assignment.
-The Greening Fire Team: An amazing and talented group of folks!
-The Umpqua National Forest, for believing in the work and helping me to get hands on experience with items I couldn't purchase myself. You ROCK!

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-The Mount Hood National Forest for their generosity and support.
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Bryan Massey, WA DNR, for help with the photographs.

And a huge "thank you!" to the countless people behind the scenes, those at incidents who showed enthusiasm and spurred me on, my CPAP "test subjects", and the people anonymously supporting my solar projects. I couldn't have done this without you!

## The fine print:



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