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# **Make Your Own Lithium Power Banks**

***Release 1.0***

**Demand Energy Equality**

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**PREFACE**

**1.1 Introduction**

**1.2 Notes**

**1.3 License**



## INTRODUCTION

### 2.1 The Demand Energy Equality project

### 2.2 Using this guide

### 2.3 Disclaimer





**BASIC CONCEPTS**

**3.1 Power consumption**

**3.2 Voltage**

**3.3 Current**

**3.4 Resistance**

**3.5 Series and parallel circuits**

**3.6 Battery capacity**



## **RISKS AND DANGERS OF LITHIUM-ION BATTERIES**

### **4.1 Minimising the risk of lithium-ion battery fires**



## **WHAT ARE LITHIUM-ION BATTERY CELLS?**

### **5.1 Comparing Lead-acid and Lithium batteries**

### **5.2 Lithium-ion charging**

### **5.3 Caring for lithium-ion batteries**



## COLLECTING 18650 CELLS

**6.1 Where to find second hand 18650 lithium cells**

**6.2 18650 cell configurations**

**6.3 How to safely recover 18650 lithium-ion cells from a laptop battery**

**6.4 How to test 18650 cells**





## **BUILDING A USB POWER BANK**



## **BUILDING A BIGGER BATTERY PACK**



**LITHIUM BATTERY CHEMISTRIES, APPLICATIONS AND FORM  
FACTORS**



## RESOURCES

**10.1 Useful Information On Lithium Cells**

**10.2 Other Renewable Energy Resources**

**10.3 Lithium battery suppliers for off grid systems**





**APPENDIX**

**11.1 Equipment list**

**11.2 Using a multimeter**