



Good Point Recycling Solar Voltaic Panel Plan

Here is where our presentation begins

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Problem

There's no existing infrastructure or plan for the projected SVP upgrades.

02

Services

Recycling services for obsolete panels must piggy back on new SPV procurement and reuse.

03

Revenue

Estimate that most of the SVPs panels to be replaced will have several years of useful life, resale offsets recycling cost.

04

Business Model

Like SVGA CRT monitors and flip phones, the reuse life of SVPs will fall in the OECD, but boom in Emerging Markets



Introduction



History

Since March 2001, the American Retroworks Inc. brand “Good Point Recycling” has grown in stature. It is now one of the oldest and best regarded electronics recycling companies on the planet, the subject of books and articles and news reporting.

Founder Robin Ingenthron is a veteran of the Recycling Industry, and is looking for partners to grow with.

Our Company

A former regulator (Mass. DEP), Robin founded American Retroworks Inc. as a consultancy practice. In 2000 he decided to buy a truck and “do” the recycling he lectured about.

20 years, 30 employees, 2 facilities and 100 million recycled pounds later, the company is shifting to meet the growing demand for affordable Solar Voltaic Panels by “geeks of color” in Emerging Markets.



Our Team

Good Point Recycling has always been a diverse, hard working, talented, and integrated businesses in Vermont. Our expansion to Massachusetts promises faster growth and greater returns. Good Point is an important employer of blue collar workers, women truck drivers, and differently abled Americans.



Good Point Recycling

division of American Retroworks Inc.
Established Earth Week 2001
www.retroworks.com



Problem

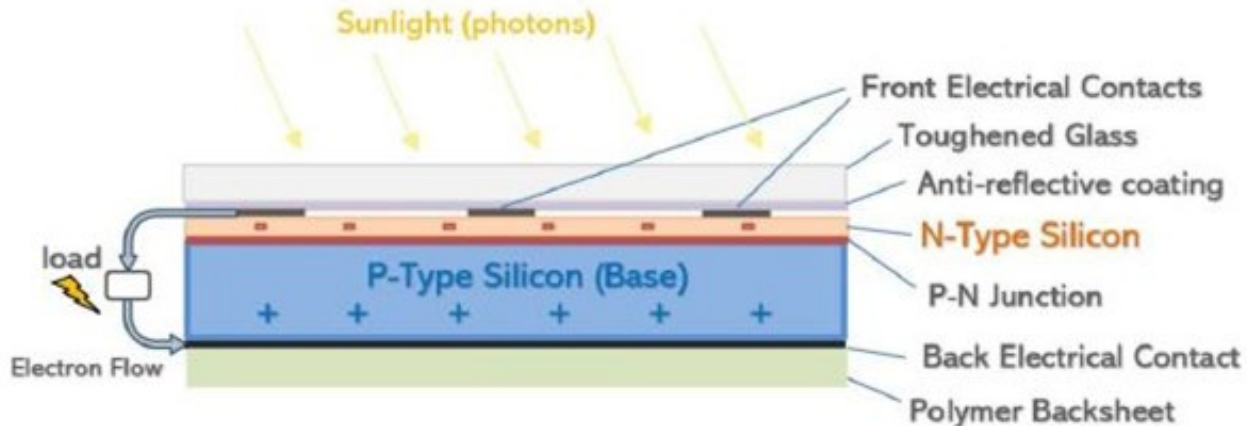


New solar panels are becoming cheaper and more efficient, while new “farms” and “fields” are harder to site (especially in the Northeast)

Like flat panel monitors, laser printers, LED bulbs, and smart phones, we expect an explosion in supply of “**elective upgrades**”. Used Solar Voltaic Panels prices in USA have fallen by $\frac{2}{3}$, and may overwhelm recyclers..

2021 University of Rhode Island Thesis - Lennart Banaszak

1. Useful life projections of legacy panels are under-estimated. 40 year old panels tested still work
2. Increased efficiency of more modern panels pays for elective upgrade in 7-8 Years
3. Price of used panels in OECD in freefall
4. Manual de-manufacturing trials proved cumbersome
5. Current shredding technology is environmentally worthless (new tech being developed in Germany)

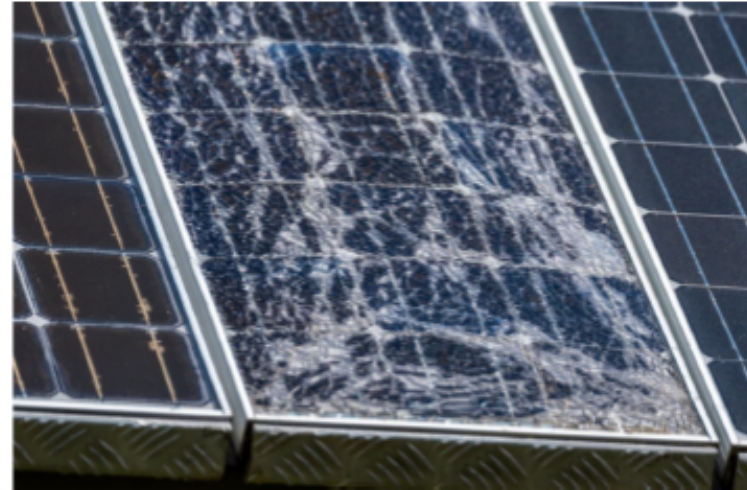


Reasons for the Disposal of PV panels

➤ PV panels have a warranty of 25 to 30 years

What causes a replacement?

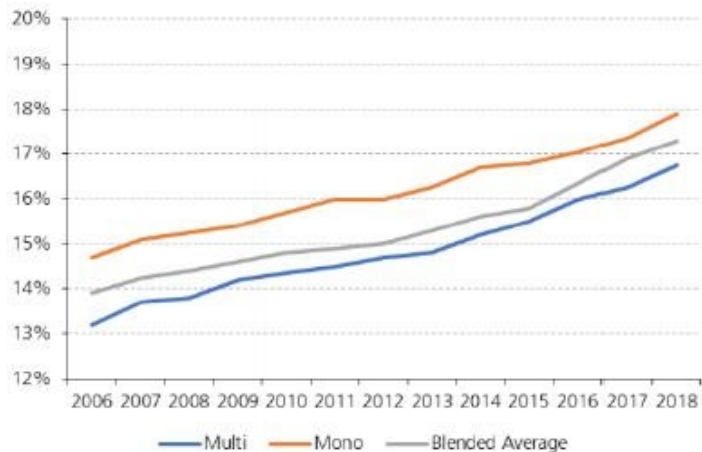
- Physical damage -> shattering
- Electric mal function within a solar cell
- Thermal cycling
- UV exposure
- Economic considerations ...



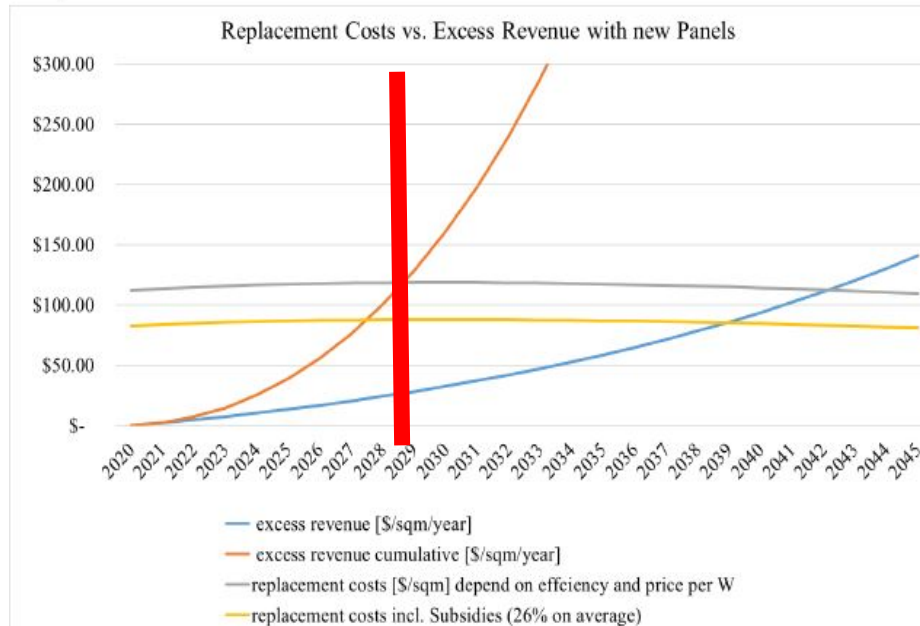
Will tariffs on Chinese Solar Panels (70%+ of US Market) shift the tipping point?

Efficiency of Solar Panels

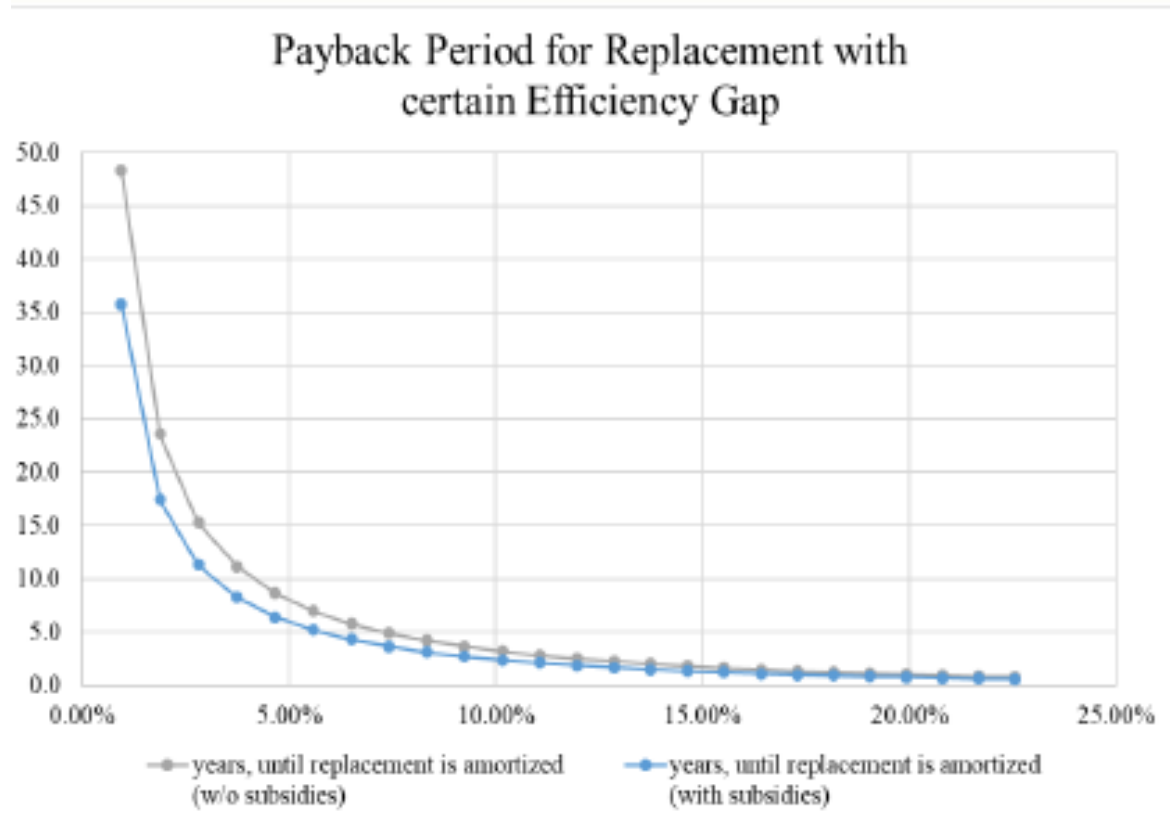
Development over time (average efficiency)

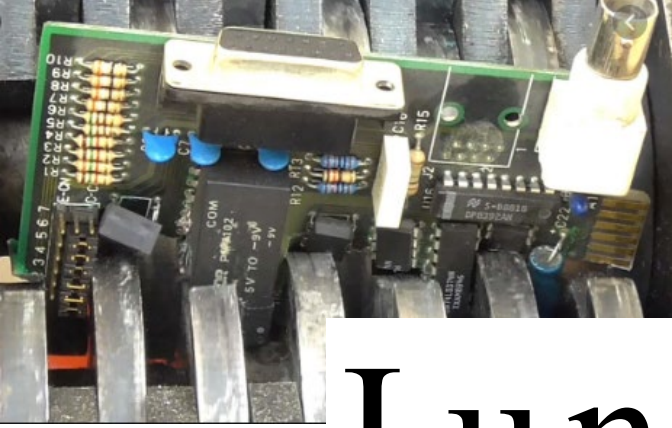


Replacement Costs vs. Excess Revenue



SVP Life is 40 Years - But Upgrade is Optimal in as few as 7-8 Years!





Most e-waste recyclers we interviewed practice “the solution is dilution”-- as long as steel scrap demand is high, mixing a few SVP’s into the shredder keeps the scrap from building up.

Large glass and industrial mineral processors like Dlubak are expanding into the field with acquisitions like Cascade Eco Minerals.

Junk ?

THE BAD NEWS: Recycling trials, so far, waste more resources than they preserve!



Fortunately, like flip phones and CRT monitors before, most Solar Panels aren’t being replaced because they are unrepairable or even non-functional. Falling prices of more efficient panels is driving “elective upgrades”.

This points to a viable Secondhand Reuse Market

We need to keep reuse and recycling integrated!

Not

Solar Recycling Solutions

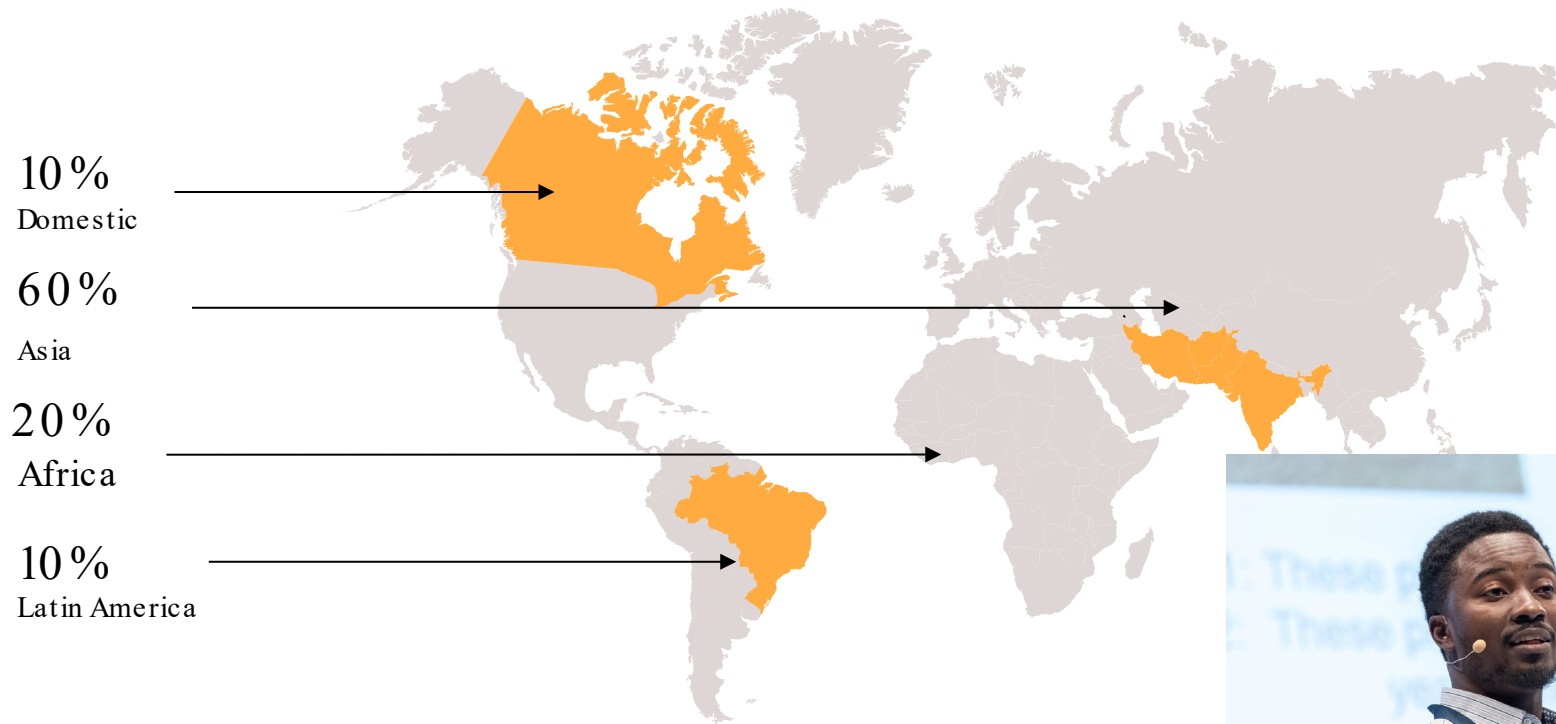


Recyclers like Good Point Recycling have pioneered a “cost offset” model, which charges a base fee (\$0.15-\$0.50) that is share-refunded when any solar panels do sell for reuse.

Japanese recycler Marubeni has announced a blockchain tracking program to ensure reuse income is tracked and shared. In the USA, OBADA.io (Open Blockchain Asset Disposition Architecture) is developing a similar asset tracking program.



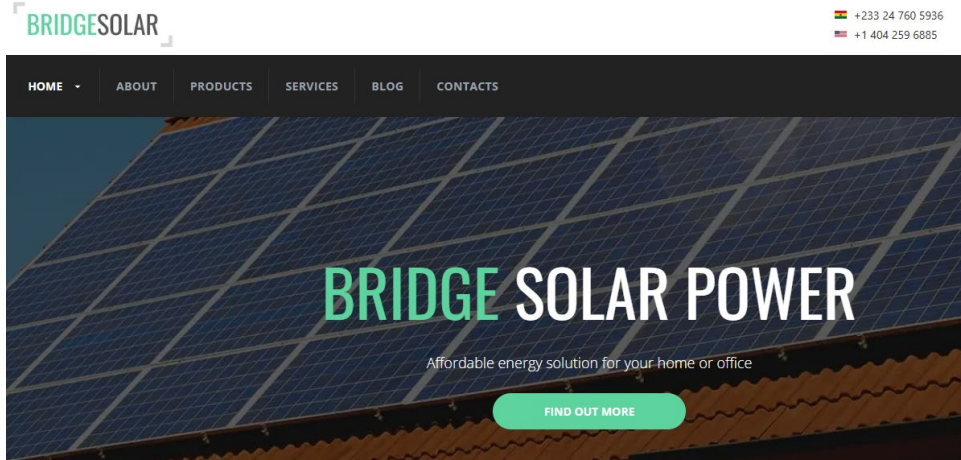
Good Point's Experience with International Tech Sector Markets will Open Huge New Opportunities



Founder, [BridgeSolarPower.com](https://www.BridgeSolarPower.com)



New Solar Reuse Initiatives



HOME ABOUT US PRODUCTS & SERVICES CONTACT

> What we offer

<https://africa.com/trans-africa-investment-summit-2025-powering-africa-with-solar-energy/>

**TRANS AFRICA
INVESTMENT SUMMIT
2025**

5 6 7 NOV. 2025 Kampala
Uganda

Theme:

Powering Africa with Solar Energy to foster Collaboration
between Africa and the Diaspora:

Don't waste this Solar Reuse Opportunity

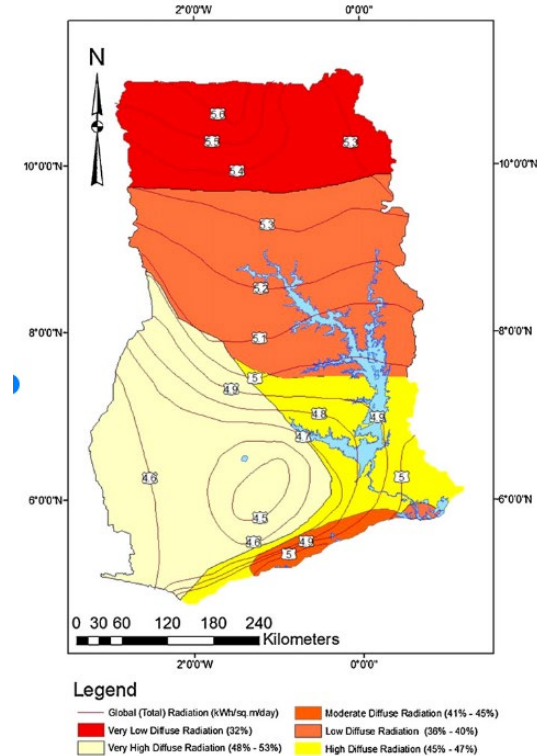
1) Africans were perfectly capable of setting up TV stations with a critical mass of users supplied by used TVs in the 1970s.

2) Africans were perfectly capable of setting up internet switches in the 1990s, with a critical mass of users supplied by used computers.

3) Africans were perfectly capable of setting up tens of thousands of cell phone towers in the 2000s, with a critical mass of users supplied by used flip phones.

Today, there's no reason to think Africans are not perfectly capable of harvesting millions of megawatts of solar electricity using second hand solar voltaic panels.

The future of reuse is sunny...



Solar Hierarchy

1. Replacing existing panels with more efficient panels contradicts REDUCE
2. Expanding demand for electricity in Emerging Markets will increase REUSE
3. Cost to Recycle is very high, so we need # 2 to offset costs

End markets for non-reuse, EOL:

- Industrial mineral (silica blends, e.g. for reflective paint, rock drill lubricant)
- Aluminum and ferrous metals
- Some German and Japanese investments in chemical recovery, currently too costly
- Subpanel recovery (for smaller solar powered devices)

Learn from 1999 Cathode Ray Tube Laws

1. Don't misapply TCLP test, not intended for outdoor safe solids
2. Don't racially profile the export for reuse economy
3. Do review solar panel procurement RFPs for "reuse safe" language

Post User Neutral Territory (PUNT)

Like flip phone and CRT exports, the opportunity won't last forever, and eventually these panels must be dealt with. But MOST of the environmental harm occurs at mining and manufacture, not disposal, and extending product life to make tech affordable in emerging markets is a very good thing.

Electronics Re-Use and Recycling Infrastructure Development in Massachusetts (1999)


<https://tinyurl.com/EPACRT1999>

Good Point Recycling

goodpointrecycling.net



Reputation of Good Point's Fair Trade Recycling Motto



Robin has opened the world's eyes to bigotry, profiling and waste colonialism vs emerging markets.

—Adam Minter

Author, Secondhand

Robin has inspired researchers from a half dozen universities to investigate what turned out to be ridiculous claims

— Dr Josh Lepawsky

Author, Reassembling Rubbish

Robin has exposed what I deem Criminal Negligence by major press and research groups, who ignored their own data.

— Dr Josh Goldstein

co-Author, Criminal Negligence?

- + Dozens of references from EPA, Basel Convention, Manufacturers, Universities, United Nations, State Offices
- + Featured in PBS, NPR, USA Today, Recycling Today, Recycling International, EScrap News, and many more.

Awards & Certification

Winner of several industry Lifetime Achievement, Recycler of the Year, Americans With Disabilities Act awards and other professional organization recognitions.



**ISO, R2,
FAC110**

Good Point Recycling is fully insured and vetted by ISO and R2 and OEM and State Contract authorities



NRRA, NERC, ADA...

Good Point and its founder Robin Ingenthron have received numerous nominations and awards, including 2 lifetime achievement recognitions and several recycler of the year nominations



*Featured Cover Story, Recycling Today, September 2020
Named #36 Expert worldwide by Recycling International in 2021*

Driver Ibrahim Moro Earns USA citizenship, July 2020



Awesome Future





Predicted Growth



	2005	2010	2015	2020	2025
► Fees	249k	649k	1,523k	2,000k	\$4000k
► Scrap	12k	332k	336k	350k	\$1000k
► ReUse	30k	258K	191K	650k	\$4000k

Investment

\$316,000 interest paid to date on \$300k F&F investment.

Over \$8Min Wages and Payroll to date

No defaults, good credit score, reputation solid

Eligible for \$3M in federal matching funds 2022

Prospects

Future Investment for
Future Rewards



Recycling Collections

Massachusetts new 5 year contract promises soaring growth.



Scrap Value

Scrap electronics, rich in gold, copper, aluminum and other rare metals, will grow in value in the decade.



Parts Resale

Innovative AI technology lowers cost of goods sold as volumes double in 2 years.

Contact:

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Thanks

Does anyone have any questions?
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yourcompany.com

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- ◄ Long shot man walking in desert
- ◄ Desert landscape in morocco
- ◄ Camel in desert landscape in morocco
- ◄ Young woman looking at a camel in the desert
- ◄ Woman in nature with clothesline
- ◄ Spices on market in marrakech
- ◄ Plates on market in morocco
- ◄ Oriental door
- ◄ Two people sitting on top of dune taking photos
- ◄ Tourist in desert landscape

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- ◀ Gradient logo template with abstract shape

PHOTOS

- ◀ Extreme long shot of two people sitting on top of dune
- ◀ Desert landscape
- ◀ Camel in desert
- ◀ Desert landscape in morocco
- ◀ Beautiful woman on roadside playing with hula hoop
- ◀ Man sitting on top of dune in desert
- ◀ Man walking on top of dune in desert
- ◀ Sideview of two people sitting on dune
- ◀ Circular forms on beach sand
- ◀ Circular shaped lines from yellow sand
- ◀ Dried aloe vera sunny day
- ◀ Desert landscape in morocco
- ◀ Desert landscape
- ◀ Desert landscape in morocco
- ◀ Rocky relief with clear sky
- ◀ Group of people sitting on top of dune
- ◀ Back view woman posing next to a pond
- ◀ Desert landscape II
- ◀ Spices on market in morocco
- ◀ Camel in desert landscape in morocco

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A black rounded square with a thin white border, containing the hex code #000000 in white text.

#000000

A light gray rounded square with a thin white border, containing the hex code #ded6d4 in white text.

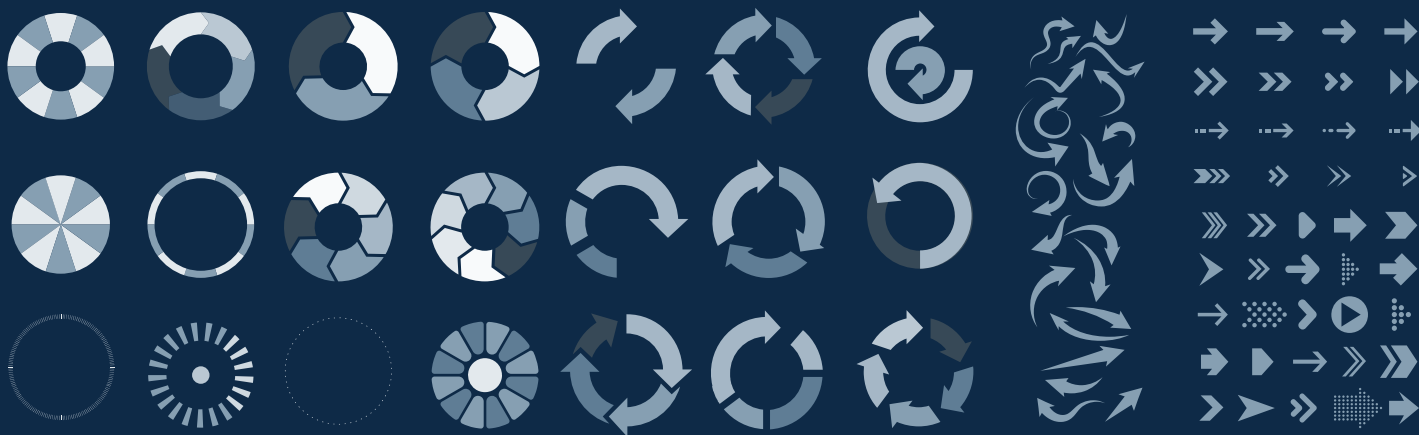
#ded6d4

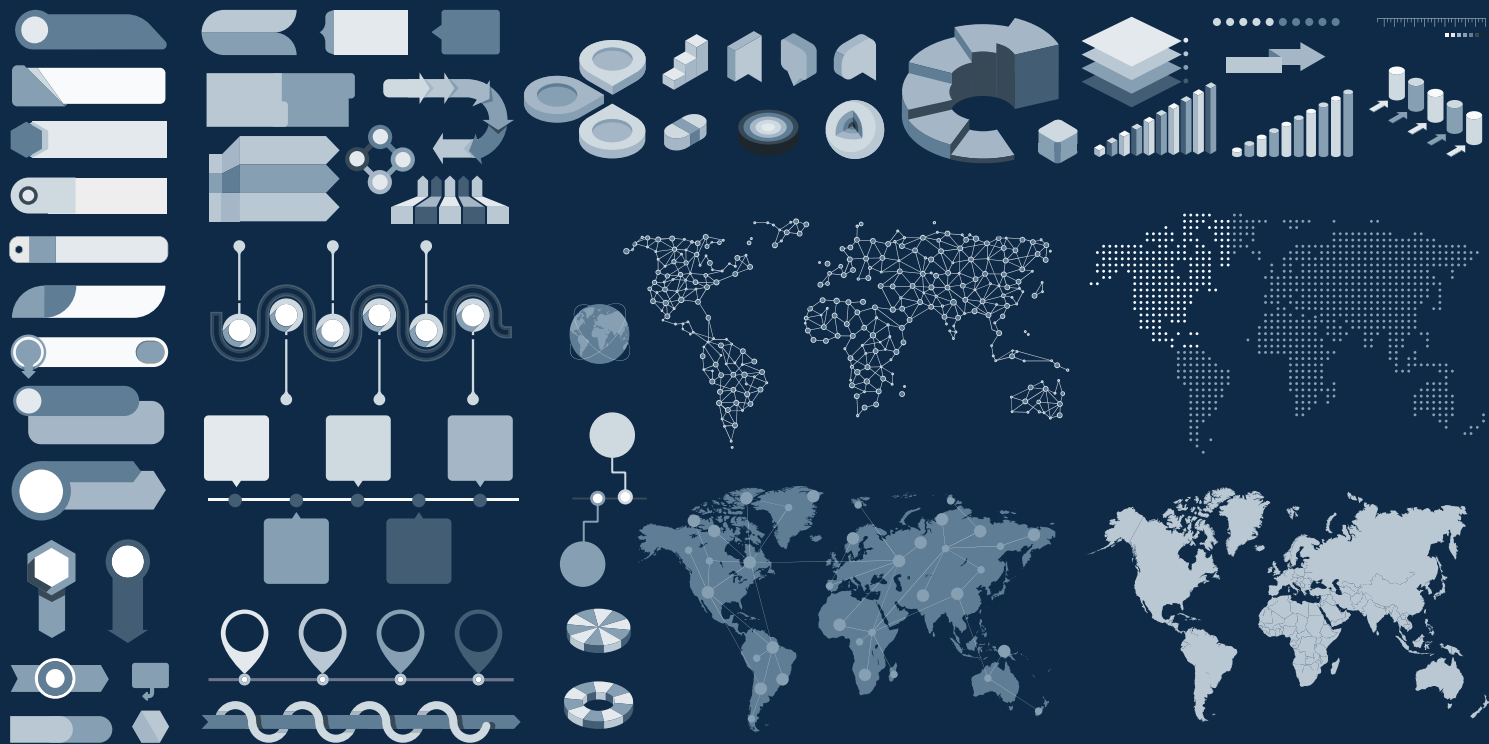
An orange rounded square with a thin white border, containing the hex code #ffab40 in white text.

#ffab40

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