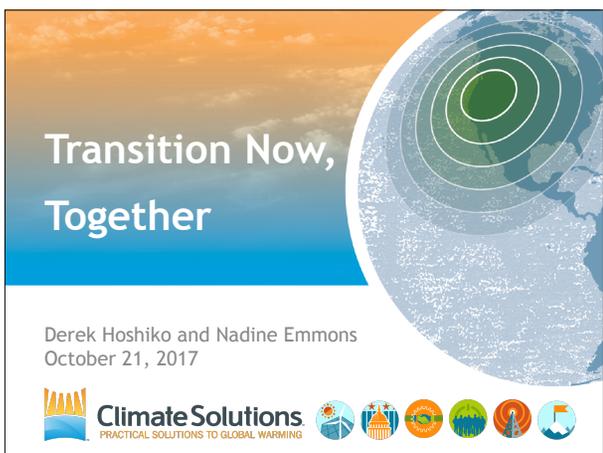




1

The sky seems limitless when looking from the ground, the atmosphere is very thin—3/4 of Earth's atmosphere is within 6.8 mi ([https://en.wikipedia.org/wiki/Atmosphere\\_of\\_Earth](https://en.wikipedia.org/wiki/Atmosphere_of_Earth))

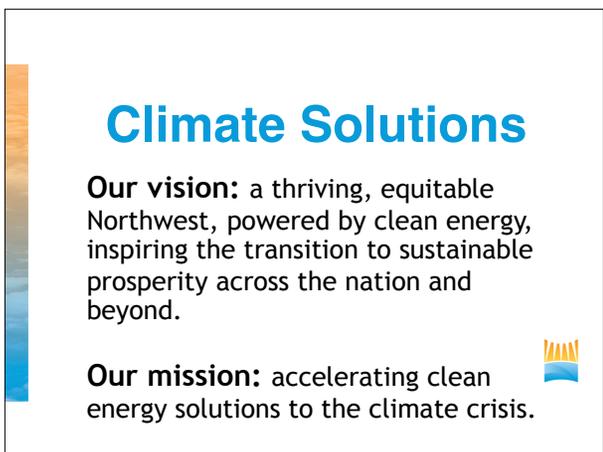
NASA has referred to it this way, "If the Earth were the size of a basketball, the thickness of the atmosphere could be modeled by a thin sheet of plastic wrapped around the ball" (<https://www.grc.nasa.gov/WWW/K-12/airplane/atmosphere.html>)



2

Transition Now,  
Together

Derek Hoshiko and Nadine Emmons  
October 21, 2017



3

## Climate Solutions

**Our vision:** a thriving, equitable Northwest, powered by clean energy, inspiring the transition to sustainable prosperity across the nation and beyond.

**Our mission:** accelerating clean energy solutions to the climate crisis.



**As a Northwest-based clean energy economy nonprofit, Climate Solutions works to:**

- champion transformational policies and market-based innovations
- catalyze powerful partnerships and a diverse movement for action and accountability
- communicate a bold vision for solutions at scale required by the climate science

<https://www.climatesolutions.org/>

Find us on Facebook:

<https://www.facebook.com/climatesolutions/>

4

## 100% Clean Energy



The Pacific Northwest is among the regions best-prepared to spearhead the transition to 100% clean energy. 

Oregon and Washington's natural resources, historic clean energy achievements, technology leadership, and emphasis on sustainable prosperity make our region a natural leader in the transition to a clean energy future.

- We can transition our electrical grid to 100% clean and efficient energy, faster than anywhere else in the nation.
- We can leverage our clean energy grid to electrify as many uses for the built environment, industry, and transportation as we can.
- We can do it in a way that benefits all communities, the workers reliant on the current fossil fuel economy, and improves our public health and economy.

•WHAT MAKES US BEST PREPARED?

5

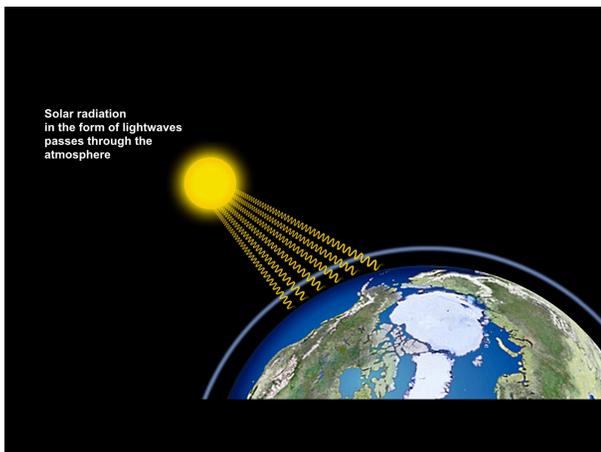
We Emit  
110 Million Tons of Global  
Warming  
Pollution into the  
Atmosphere  
Every 24 Hours



"We're treating the atmosphere like an open sewer." (Al Gore)

6

Solar radiation  
in the form of lightwaves  
passes through the  
atmosphere



Here is the basic science of the greenhouse effect. This has been understood by scientists since the 1800s.

NASA has a great website for kids of all ages to learn these basics :

<https://climatekids.nasa.gov/greenhouse-effect/>

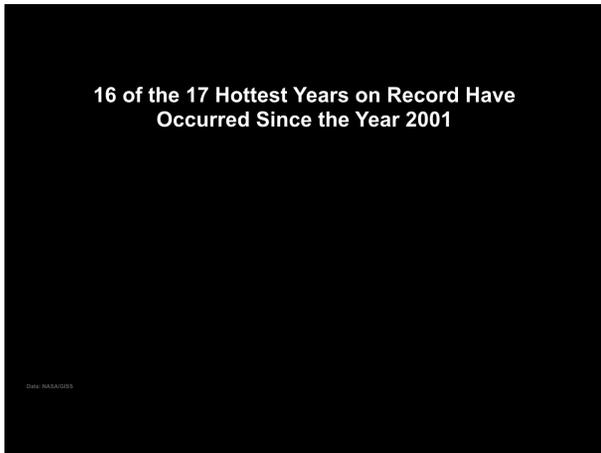
- Energy from the sun comes to Earth in the form of light (photons)
- That energy is absorbed by the Earth and warms it.
- Some of that energy is re-radiated from the Earth in the form of heat.
- Some of that outgoing heat is trapped by the atmosphere, which is a good thing—it has kept our planet at a stable temperature.
- Now, however, we have been "thickening" the atmosphere by filling it with heat-trapping pollution. More heat energy is trapped, and it is warming our planet at an unprecedented rate.



7

There are many sources of manmade global warming pollution: agricultural practices, forest burning, transportation, and many other factors.

But the main source and cause of the rising global temperatures we are seeing today is the burning of fossil fuels.



8

16 of the 17 hottest years ever measured with instruments have occurred since 2001

The hottest year of all was 2016.

“The planet’s average surface temperature has risen about 2.0 degrees Fahrenheit (1.1 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere.

Most of the warming occurred in the past 35 years, with 16 of the 17 warmest years on record occurring since 2001. Not only was 2016 the warmest year on record, but eight of the 12 months that make up the year - from January through September, with the exception of June - were the warmest on record for those respective months.

October, November, and December of 2016 were the second warmest of those months on record - in all three cases, behind records set in 2015.”

-- NASA and NOAA press release from January 2017

<https://www.nasa.gov/press-release/nasa-noaa-data-show-2016-warmest-year-on-record-globally>



9

Many people do not know exactly where greenhouse gas emissions are coming from. We need to pay attention to the whole picture of climate change and climate solutions, which will effect many industries and not just through increased use of renewable energy.

## Impacts of Climate Change



10

### REEFS

Huge sections of the Great Barrier Reef, stretching across hundreds of miles of its most pristine northern sector, were recently found to be dead, killed last year by overheated seawater. More southerly sections around the middle of the reef that barely escaped then are bleaching now, a potential precursor to another die-off that could rob some of the reef's most visited areas of color and life.

"We didn't expect to see this level of destruction to the Great Barrier Reef for another 30 years," said Terry P. Hughes, director of a government-funded center for coral reef studies at James Cook University in Australia and the lead author of a paper on the reef that is being published Thursday as the cover article of the journal Nature. "In the north, I saw hundreds of reefs – literally two-thirds of the reefs were dying and are now dead." (Photo: New York Times)

### OCEAN

Ocean acidification killed off more than 90 per cent of marine life 252 million years ago

<http://www.independent.co.uk/news/science/ocean-acidification-killed-off-more-than-90-per-cent-of-marine-life-252-million-years-ago-scientists-10165989.html>

Half of All Marine Life Lost in Just 40 Years

<https://www.seeker.com/half-of-all-marine-life-lost-in-just-40-years-1770251747.html>

### ARCTIC

pictures of Arctic sea ice between 1984 and 2016 show the rapid decline in perennial sea ice. Perennial sea ice (or multi-year ice) is the portion of the sea ice that survives the summer melt season, may have a life-span of nine years or more, and can grow up to four meters thick. (Photo: NASA Scientific Visualization Studio)

11

- In 2016, this fire in the heart of the Canadian tar sands region destroyed large parts of the city of Fort McMurray, Alberta and forced the evacuation of over 100,000 people.

Models project even more wildfire in the future, increasing risks to local communities.

A few articles on the global reach of fires:

<https://www.popsoci.com/global-wildfire-maps#page-2>

<http://www.dw.com/en/climate-change-sets-the-world-on-fire/a-40152365>

12

*Humans Are Close to Killing Off Two-Thirds of All Wildlife in Just 50 Years illustration by Heather Elder. Please use with attribution, do not share without permission.*

That 50 Year mark will be 2020. By 2017, we already have killed off 58% of all vertebrate life on the planet. And that is up from 50% just a few years ago in 2014. Source is WWF's biennial Living Planet Report. Article about report:

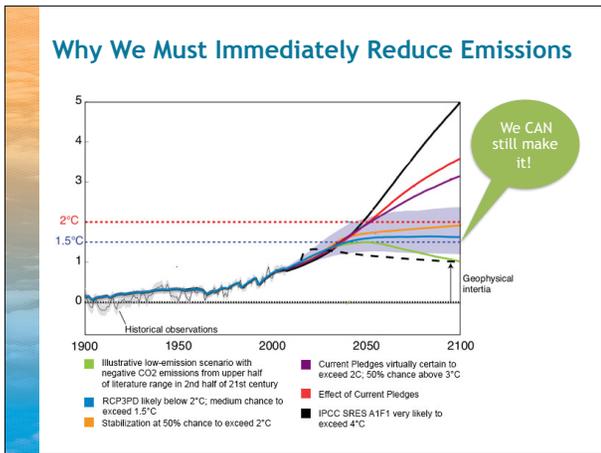
[http://www.huffingtonpost.com/entry/living-planet-report-wwf\\_us\\_58114bcce4b064e1b4b0725b](http://www.huffingtonpost.com/entry/living-planet-report-wwf_us_58114bcce4b064e1b4b0725b)

Actual 2016 WWF Living Planet Report:

[http://wwf.panda.org/about\\_our\\_earth/all\\_publications/lpr\\_2016/](http://wwf.panda.org/about_our_earth/all_publications/lpr_2016/)

This slide conveys the speed of ecological collapse and makes it clear we need an immediate and rapid transition to a sustainable, living, and local economy.





13

Adapted from *Climate meltdown: Global Warming heading towards 6 degrees C warns World Bank* (<https://www.indybay.org/newsitems/2012/11/21/18726145.php>)

If we acknowledge the international Paris agreement in 2015, which reaffirms the international Copenhagen agreement of limiting global warming to 2 degrees C, while making every effort to limit global warming to 1.5 degrees C, we can see from this chart the various scenarios.

Historical temperatures are the first half of the chart, and projected scenarios are on the second half of the chart.

The black line going to 5 degrees C is business as usual, and even the initial INDC commitments of all nations in Paris only add up to 2.7-3.2 degrees C, surpassing the limit. Only the blue line gives a good chance of keeping global warming to 2 degrees C, and only the green line gives us a chance of keeping global warming to 1.5 degrees C.

Note that the dashed lines are an immediate cessation of global warming pollution in 2016, so the difference between the effect of the current pledges and what is needed, is clearly shown



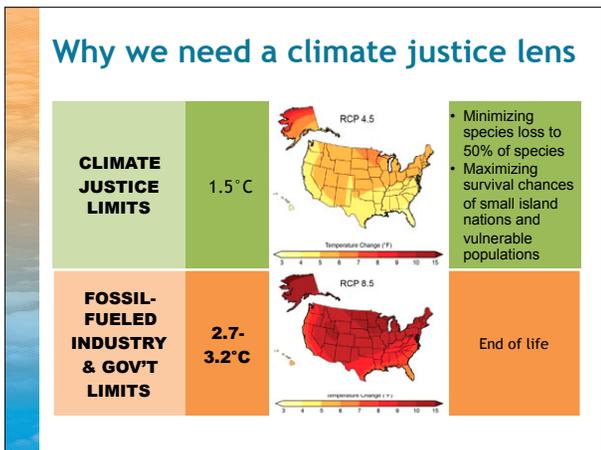
14

*We Need You!* illustration by Heather Elder partially based on data from Oil Change International's *The Sky's Limit 2016* report ([http://priceofoil.org/content/uploads/2016/09/OCI\\_the\\_skys\\_limit\\_2016\\_FINAL\\_2.pdf](http://priceofoil.org/content/uploads/2016/09/OCI_the_skys_limit_2016_FINAL_2.pdf)). Climate justice numbers are based on information such as in Nature's "Three years to safeguard our climate" (<http://www.nature.com/news/three-years-to-safeguard-our-climate-1.22201>) Please use with attribution, do not share without permission.

The first panel is based on Bill McKibben's viral article in 2012, "Global Warming's Terrifying New Math" in *Rolling Stone*. The key point is we could have only afforded to emit 565 gigatons of CO2 to have an 80% chance of keeping below 2 degrees C of global warming.

The second panel. McKibben released a sequel to that article called "Recalculating the Math" in *New Republic* in 2016. The new numbers were saying we could afford to emit 800 gigatons of CO2 and have a 67% chance of keeping below 2 degrees C of global warming. A new number is added, 353 gigatons of CO2 to have a 50% chance of keeping below 1.5 degrees C of global warming.

The third panel. Based on the best available science and my own analysis, we actually have more like 400 gigatons and 160 gigatons at best. No institution is prepared to talk about this or advocate for what is needed, including environmental organizations e.g., [350.org](http://350.org). We already showed that international leadership is not up to the task, and we certainly are not seeing leadership from the national level/Trump administration. Also state legislatures throughout the country are ill prepared to take ambitious action. Therefore it is up to you, and the people you know in your community—and communities everywhere—who will lead.



15

Maps from CMIP5 models shown in "Report: Climate change has already hit USA - and time is RUNNING OUT" ([http://www.theregister.co.uk/2014/05/06/us\\_national\\_climate\\_assessment/](http://www.theregister.co.uk/2014/05/06/us_national_climate_assessment/))

Social justice folks, small island nations, and nations in the "global south" have been advocating for decades for stronger and more urgent action i.e., limiting global warming to 1.5 degrees C. The agreement in Paris, while a landmark victory in international collaboration, falls short.

The difference between the two scenarios depicted here is 50% extinction vs. 90%+ extinction. A world warmed by 1.5 degrees C resembles Earth. We need to be clear not to frame any limiting of global warming as a "goal." The goal is to restore our climate to 280 ppm CO2 and at most 350 ppm CO2, the recognized "safe" upper limit. Anything above 350 ppm is dangerous or catastrophic.

## Climate Justice

- The people least responsible are suffering the worst consequences.
- The people in power are not impacted and have no vested interest. By the time they are impacted, it will be too late.
- Working with a climate justice lens then addresses the root causes of systems of oppression, as well as the climate crisis.
- We cannot solve the climate crisis without creating a New Story, together.

16

Many people do not understand what climate justice is or why it is important. The grassroots climate movement is being led by the climate justice movement, and we need to learn about it. Developing a personal analysis of climate justice is a lifelong journey, not a check on a checklist. However, we can begin to gain some fluency by considering these points.

The "outmoded mainstream" environmental movement (going green) has failed to solve global warming, and will continue to fail without acknowledging that we need to change what we value and how we work. The climate justice movement recognizes that and is moving forward. The question is whether the rest of society will follow the lead of climate justice leaders.

## Creating the New Story

- The New Story changes how we see ourselves and our relationships
- Developing a new economy that works for everyone
- Local, community solutions
- Collaborative and dynamic
- To change everything, we need everyone

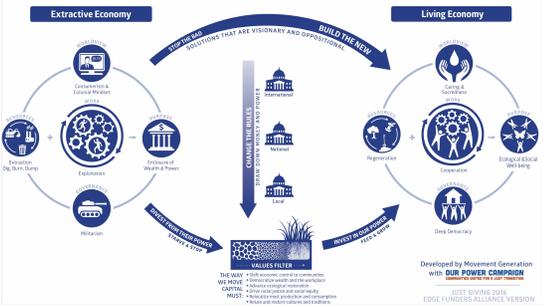
17

To solve global warming, we need a comprehensive review and plan to transform the systems and pipelines of oppression that are the root cause of global warming and many other of society's problems. We must develop the analysis, and then work with everyone to change everything everywhere at once, and with due haste and rapidity.

Solutions come from addressing change within all three pillars of economy, environment, and society to address economic inequality, environmental destruction and the climate crisis, and racism.

### A STRATEGY FRAMEWORK FOR JUST TRANSITION

RESIST — RETHINK — RESTRUCTURE



18

A Strategy Framework for Just Transition source: <http://movementgeneration.org/movement-generation-just-transition-framework-resources/> and info about Our Power Campaign: <http://www.ourpowercampaign.org>

The national group Grassroots Global Justice Alliance (GGJ), "... co-anchored the founding of the Climate Justice Alliance (CJA), a collaborative of over 35 community-based and movement support organizations that launched the Our Power Campaign: Communities United for a Just Transition in June 2013 to bring together frontline communities to "build the bigger we" for a just transition toward local, living economies."

We must transform our economy from one based on principles of extraction to one based on living principles. The way we do that is we must change the values that inform how we make decisions through a values filter (next slide).

## Divest from the Extractive Economy

All our economic decisions must meet these criteria:

- Shift economic control to communities
- Democratize wealth and the workplace
- Advance ecological restoration
- Drive racial justice and social equity
- Relocalize most production and consumption
- Retain and restore cultures and traditions

19

To change everything, we must divest from the extractive economy and invest in the new living economy. And we must use these criteria to make decisions.

BANK REPORT CARDS

Interactive check on your banking and investments:

[https://www.ran.org/banking\\_on\\_climate\\_change](https://www.ran.org/banking_on_climate_change)

The full report:

[http://priceofoil.org/content/uploads/2017/06/Banking\\_On\\_Climate\\_Change\\_2017.pdf](http://priceofoil.org/content/uploads/2017/06/Banking_On_Climate_Change_2017.pdf)

## Categories of Effective Climate Action

FOOD	LIFESTYLE	WASTE	ECONOMY
COMMUNITY ORGANIZING	COMMUNICATIONS	POLITICAL ADVOCACY	FINANCE
TRANSPORTATION AND LAND USE	EDUCATION	ENERGY	BUILDINGS

20

## Effective Solution Criteria

- Improve economic outcomes
- Equitable and just
- Build capacity of the organizers within the community
- Puts pressure on elected officials, other decision makers, and/or utilities
- Literally reduces greenhouse gases
- Resilience and climate adaptation
- Holistic

21

Not all actions are effective. This list is an example of some criteria for effective actions. This list may be challenging or confusing for participants, so time permitting, give some time for questions.

## Invest in Living, Community Economies

### Cleveland/Evergreen Cooperative



22

Photo courtesy of YES! Magazine used with permission.

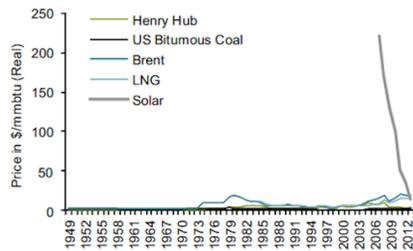
One example of Just Transition is the Evergreen Cooperatives (<http://www.evgo.com>), a network of worker-owned cooperatives that hire from their local community, and aim to be the greenest in their field.

[[A LOT more could be said about this and many other examples. One such example can be found at <http://www.missoulaclimate.org/>]]

## Shift Happens

Exhibit 2

Welcome to the Terrordome... \$/MMBTU by Energy Type



Source: EIA, CIA, World Bank, Bernstein analysis

23

Image © AllianceBernstein

Many people may not realize that solutions are cost effective and available, and that it is the climate denial industry and the fossil-fueled petro-fascist state—and ignorant privileged white men—that are preventing action. (Note: If you are a white man reading this, you might not be ignorant.)

The clean energy revolution is happening now. The cost of solar panels has dropped markedly in the past few decades and even more in the past few years—from \$79.40 per watt in 1976 to \$0.41 per watt in 2016. They are as cheap or cheaper than fossil fuel gas and coal in many parts of the world.

## Solar Energy Progress

How Do Projections Compare With Reality?

24

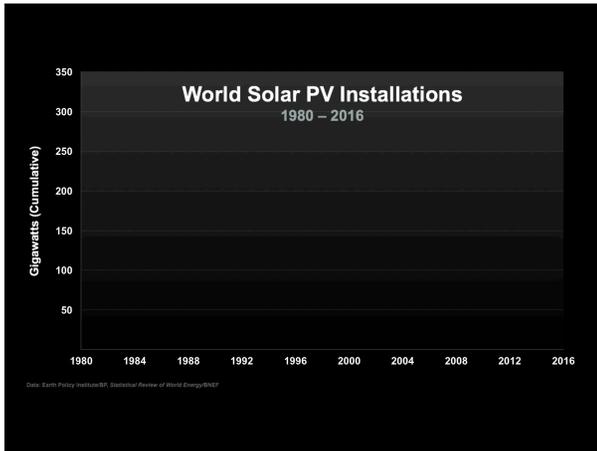
- 15 years ago the best projection was that we would install 1 gigawatt of solar energy capacity per year by 2010.
- By 2010, we exceeded that goal by 17 times.
- In 2016 we exceeded the goal by 75 times.

25

- Even more dramatically than with wind, we see an exponential curve in the amount of solar energy installed around the world.

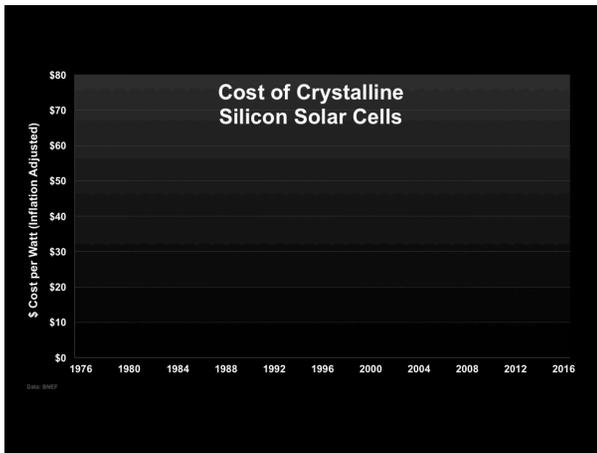
As of the end of 2016, the U.S. had 40 [gigawatts](https://en.wikipedia.org/wiki/Gigawatt) (GW) of installed photovoltaic capacity, having almost doubled in capacity from the previous year.

[https://en.wikipedia.org/wiki/Solar\\_power\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/Solar_power_in_the_United_States)



26

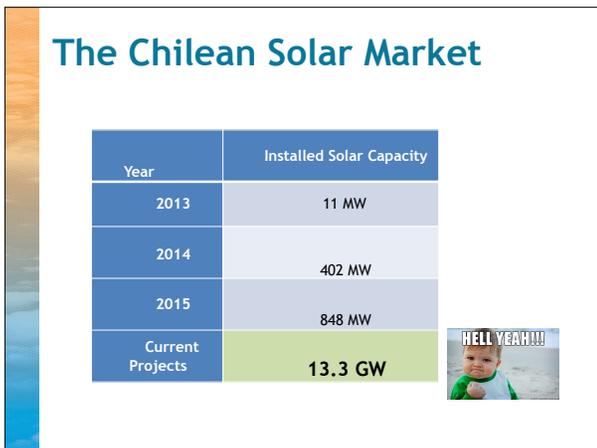
- Just as we have seen with other technologies, such as computer chips and cell phones, solar costs have fallen dramatically. In some regions, solar energy is less than half the cost of electricity from burning coal.



27

One example of rapid transform and transition is in Chile where in 2013, their total installed solar capacity was 11 megawatts. By 2014, they had 402 MW. And by the end of 2015, 848 MW. An impressive increase in just two years.

But what is mind blowing is that Chile has a staggering additional 13.3 gigawatts of solar projects approved or under construction. That's a 16-fold increase.



28

- Chile is a true solar success story, thanks to its policy decisions.
- The country's solar market took off slowly, but look at what's happening now.
- There are many regions in the world where this type of growth and development are possible.

Four Reasons Why Chile Is the Biggest Solar Market in Latin America

<https://energyathaas.wordpress.com/2017/03/27/four-reasons-why-chile-is-the-biggest-solar-market-in-latin-america/>

4 Charts Explaining Latin America's Impending Solar Boom

<https://www.greentechmedia.com/articles/read/explaining-latin-americas-impending-solar-boom1#gs.fnZ9nqg>

Mexico to reach 460 MW of distributed solar by the end of 2017

<https://www.py-magazine.com/2017/02/01/mexico-to-reach-460-mw-of-distributed-solar-by-the-end-of-2017/>



29

30 electric cars companies ready to take over the road

<https://venturebeat.com/2008/01/10/27-electric-cars-companies-ready-to-take-over-the-road/>

There have now been over 540,000 electric vehicles sold in the U.S.

<https://www.recode.net/2016/12/21/14041112/electric-vehicles-report-2016>

MASON COUNTY Public Utility District on EV's

<http://www.pud3.org/service/in-your-community/current-projects/electric-vehicles>

Belfair plugshares: only one in front of caspers pizza off of WA-3  
23720 WA-3, Belfair, WA 98528

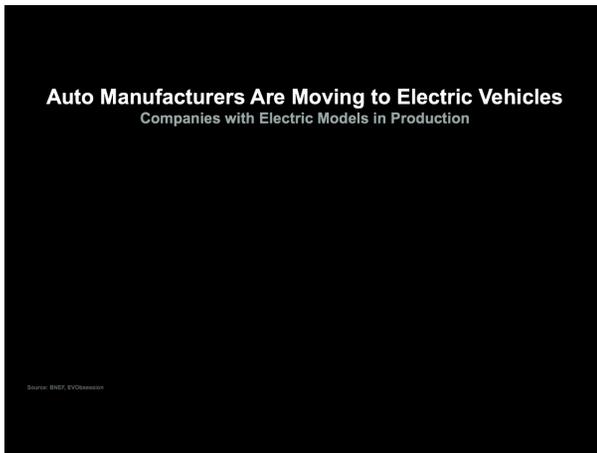
7500 SW Old Clifton Rd, Port Orchard, WA 98367

There is one RV 14-50 outlet inside a metal box on a post. Normally for RV use. Only available during track events when facility is open.

EV's in Washington state plan:

Action 6, action 4, action 10, action7

<http://www.wsdot.wa.gov/NR/rdonlyres/28559EF4-CD9D-4CFA-9886-105A30FD58C4/0/WAEVActionPlan2014.pdf>



30

Photo courtesy of @Duffernutter (<http://www.duffernutter.com>) used with permission.

My son is a climate justice activist, and last year he spoke out at a rally speaking out against the proposed Westway oil-by-rail terminal in Hoquiam, WA. This is a good place for you to insert your own image that illustrates how you personally are acting on climate. Education of youth is important if we are going to try to prepare them for a future on the earth that they have inherited from us.

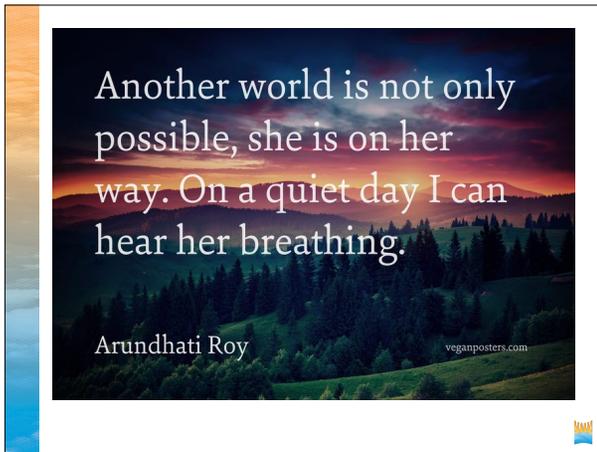


31

- Please join those who are speaking out and making choices to fight the climate crisis.
- Use your voice and your vote and your choices in the marketplace and in your life.
- Speak Truth to Power like your world depends on it.

32

Source: veganposters.com



33

