

ELECTRIC TRANSPORTATION IN JUNEAU ...THE FUTURE

*Duff Mitchell, Managing Director, Juneau
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Co-founder of the Juneau Electric Vehicle Association*

A TRANSPORTATION PERSPECTIVE

MANKIND USES HORSES FOR 3000 YEARS

1900 NYC

5th Avenue Easter Day
New York City

1900

Where is the Vehicle?



BENEFICIAL, DISRUPTIVE AND MASS TRANSFORMATION IN ONE DECADE

1913 NYC

5th Avenue Easter
Day
New York City

1913

Where is the
Horse?





Alaska State Library - Historical Collections

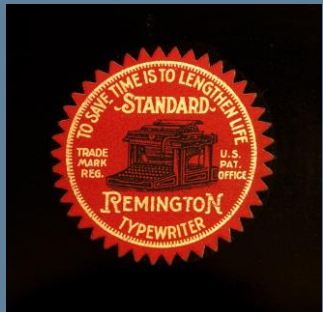


REAR VIEW MIRROR OF JUNEAU

**SHOVELING MANURE-
HAND CRANKS-
FUEL SPILLS-**



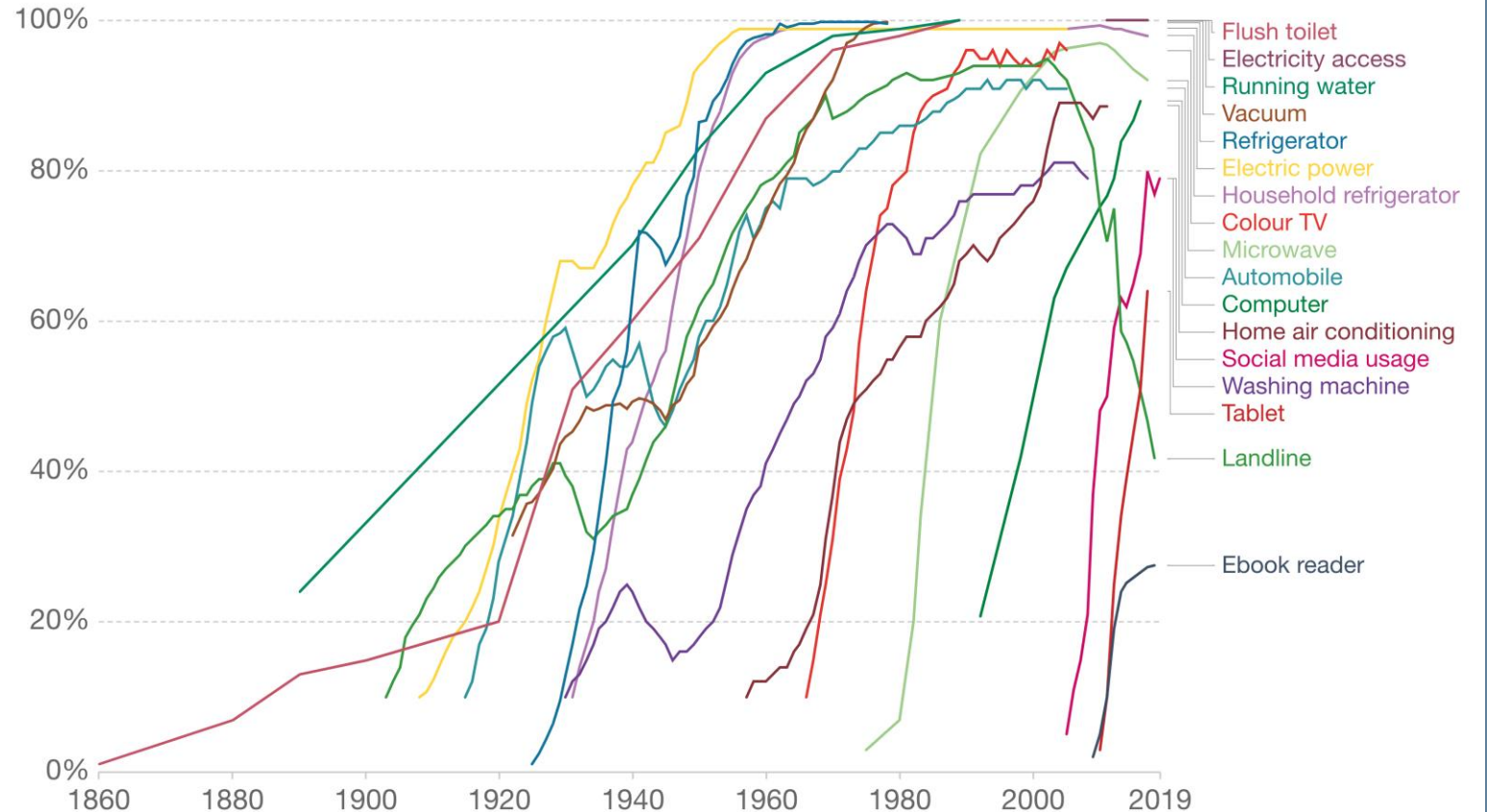
Adoption to new technology- can be brutally abrupt



Technology adoption in US households, 1860 to 2019

Technology adoption rates, measured as the percentage of households in the United States using a particular technology.

Our World
in Data



Source: Comin and Hobijn (2004) and others

OurWorldInData.org/technology-adoption/ • CC BY

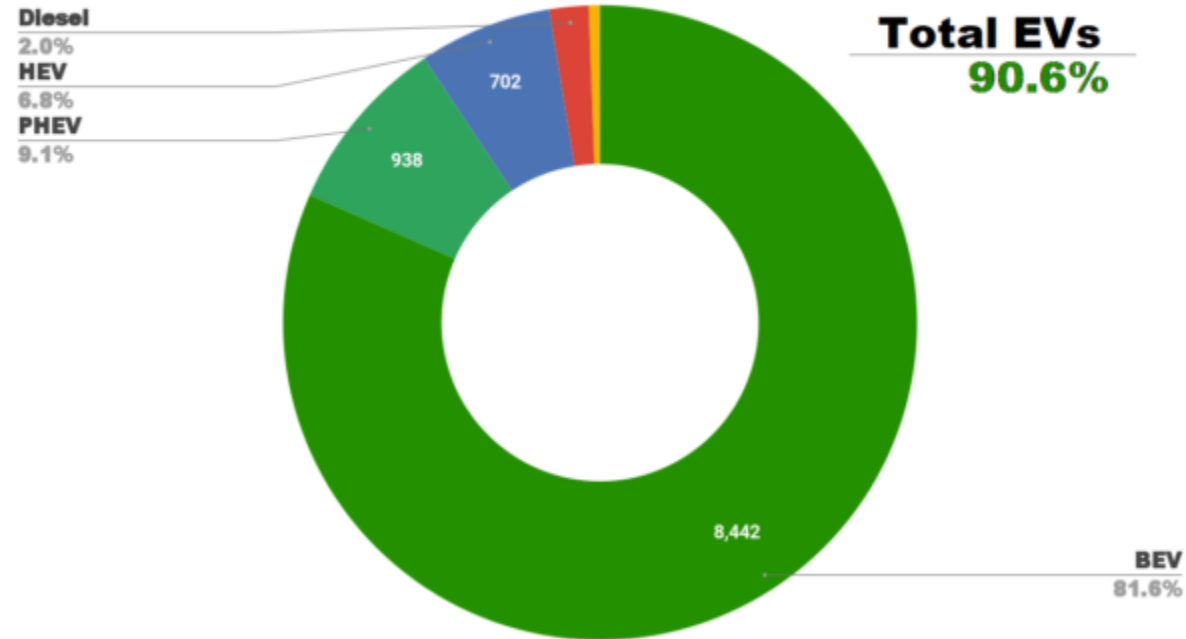
Note: See the sources tab for definitions of household adoption, or adoption rates, by technology type.

NORWAY 2023 VEHICLE REGISTRATIONS



November 2023 Norway Passenger Auto Registrations

Data from OFV



© Max Holland

NORWAY NATIONAL CHARGING STRATEGY

As the number of EVs has increased, the demand for rapid charging along the road network has also increased and most charging stations have been set up on purely market-related terms and without public subsidies. This development is expected to continue.

<https://www.regjeringen.no/en/dokumenter/national-charging-strategy/id2950371/?ch=2>

NORWEGIAN MYTH BUSTERS

- Too cold- EV's can be remotely preconditioned in garage or before driving
- Heated steering wheels and seats
- EV Heat pump heating systems. Only cold-weather fools purchase vehicles without one.
- Charge every night to 70% to keep batteries warm
- Potential use of a vehicle blanket if not garaged

According to the [Norwegian Automobile Federation](https://www.norwegianautomobilefederation.no/), cold temps can reduce an EV's range by about 20%, though this can vary a lot by model.

<https://www.fastcompany.com/91011373/evs-work-fine-in-the-cold-in-norway-heres-how-they-do-it>

The state of EV charging in America: Harvard research shows chargers 78% reliable and pricing like the ‘Wild West’

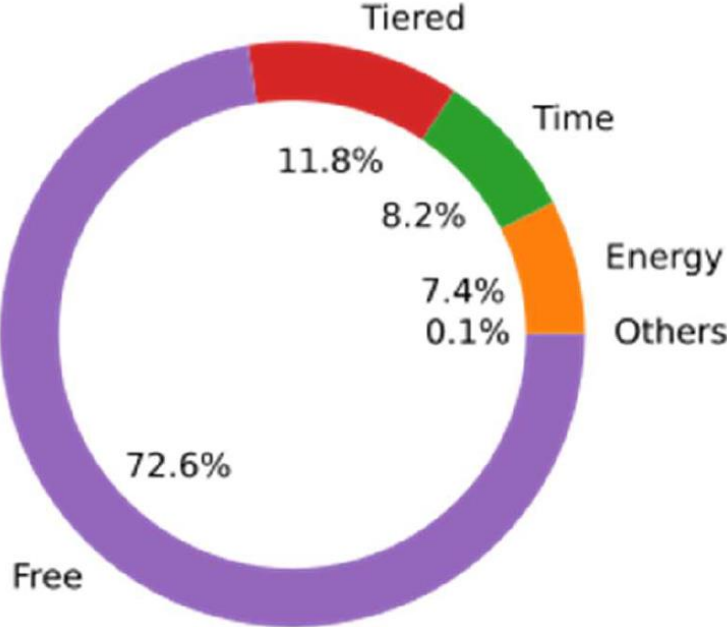


Figure 1. Distribution of pricing schemes for a national sample of U.S. charging stations in 2022 (N=10,527)

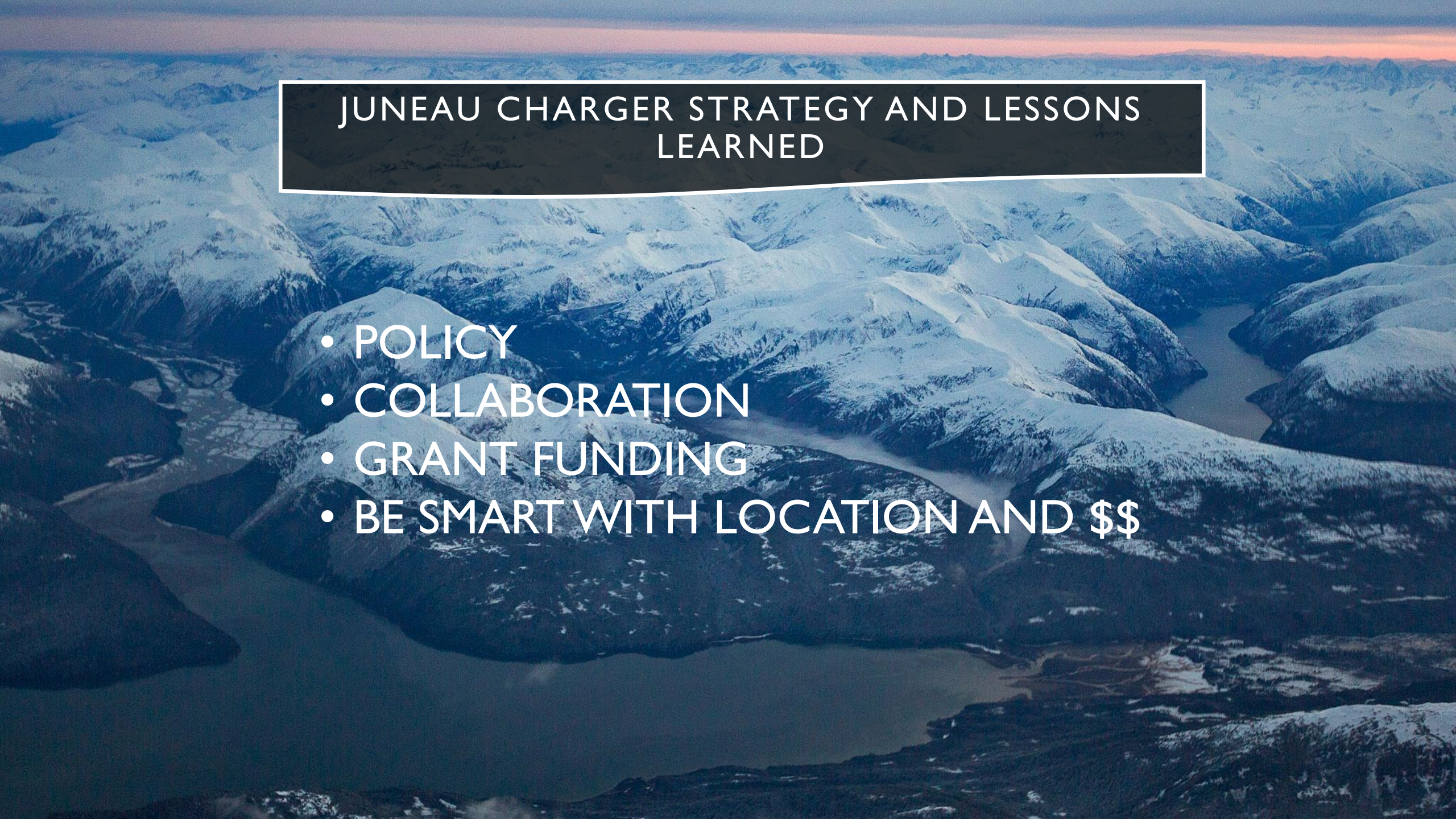
Charging Operator Price Example	True Class	GPT-4 Class	Regex Class
“Parking: First 4 hrs free. Thereafter \$2.00 per hour. Charging: \$0.25/kWh”	Energy	Energy	Tiered
“Charging always free. General metered parking 8am to 9pm, \$2.00/hour, 2 hour time limit. Free parking 9pm to 8am and in winter months”	Free	Free	Time
“\$1 first 4 hours \$3/hr afterward”	Tiered	Tiered	Time
“\$1.50 minimum, \$0.35/kWh same as other Disney ChargePoint stations”	Energy	Energy	Tiered
“Parking costs \$5/hr. \$1.25 per hour charging”	Time	Time	Tiered
“Energy: All Days: \$0.13/kWh Station Parking: First 1 hr(s) Free, thereafter \$0.10/hr”	Energy	Energy	Tiered

Table 2. Complex Price Examples

HARVARD BUSINESS SCHOOL BOTTOMLINE TAKEAWAY

****Behavioral insights from a US nationally representative sample of 13,008 stations suggest that EV users are commonly frustrated with the slower than expected charging rates and the total cost of charging.***

Common Sense Utility Takeaway. Make charging easy, make it simple, make it reliable, make it fast, and make it cheap.

An aerial photograph of a vast, snow-covered mountain range. The mountains are rugged and layered, with deep valleys and ridges. In the foreground, a calm lake reflects the surrounding landscape. The sky is a mix of soft pinks and blues, suggesting a sunrise or sunset. A dark rectangular box with a white border is positioned in the upper left, containing the title text.

JUNEAU CHARGER STRATEGY AND LESSONS LEARNED

- POLICY
- COLLABORATION
- GRANT FUNDING
- BE SMART WITH LOCATION AND \$\$



Juneau Climate Action & Implementation Plan

November 2011



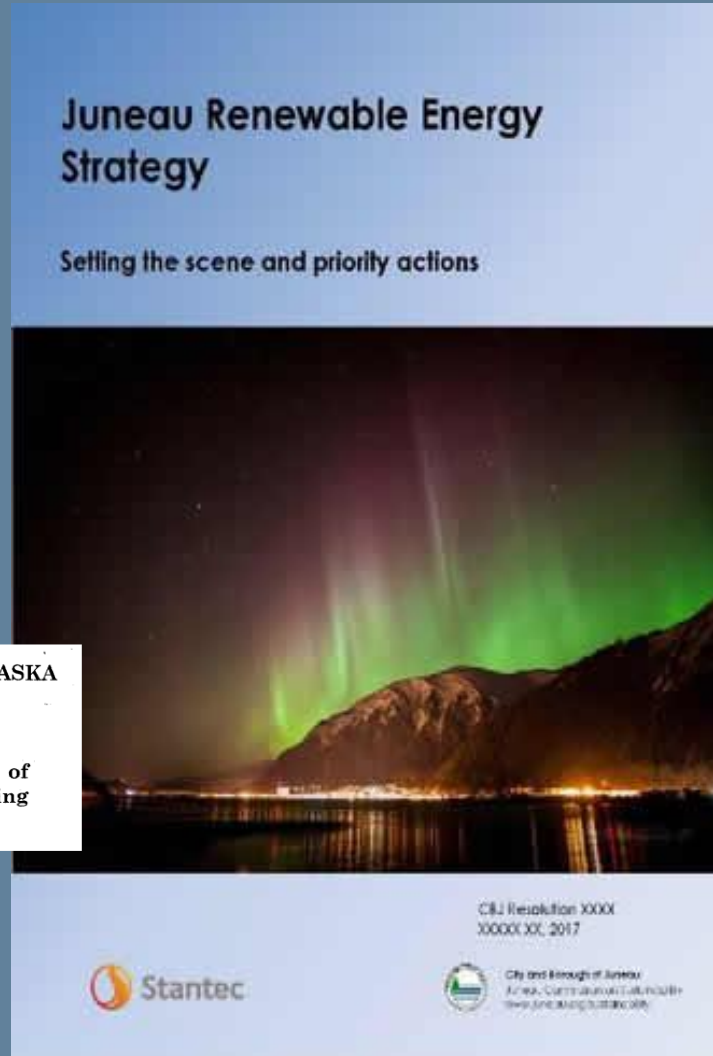
Adopted by the City and
Borough of Juneau
Assembly, Resolution 2593
on November 14, 2011.



RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 2722

A Resolution Expressing Support for the Advancement of
Electrified Transportation Vehicles and Supporting
Infrastructure.



COMMUNITY VALUES JUNEAU CLIMATE ACTION PLAN-RES. 2593 (2012)

CBJ SUPPORT FOR
ADVANCEMENT OF
ELECTRIFIED
TRANSPORTATION
VEHICLES AND
SUPPORTING RES 2722
(2015)

JUNEAU RENEWABLE
ENERGY STRATEGY
(2017)



U.S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

National Plug-In Electric Vehicle Infrastructure Analysis

September 2017

JUNEAU CHARGING

**88% OF ALL EV
CHARGING IS
DONE AT HOME.
NREL 2017**

**PUBLIC CHARGERS
PROVIDE A PUBLIC
SAFETY SERVICE**



MAKE CHARGING EASY, MAKE IT SIMPLE,
MAKE IT RELIABLE, MAKE IT FAST, AND MAKE
IT CHEAP

