HELICAT CANADA

Progressive Stewardship of Mountain Ecosystems:

Next Practices for Sustainability

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Energy Use & Climate Change Focus Area

Prepared in partnership with A.J. Grosenbaugh & Natalie Knowles, Natural Capitalism Solutions

The Vision

The vision for energy use and climate change is for helicat operators to measure and track their energy use, and prioritize actions that will further progress towards the goal of reconciling their energy demands with the supply of renewable energy.

Background Information

Energy use is an essential part of helicat operations, as it is with all human activity and development around the world.[1] Although maintaining an economically sustainable helicat operation requires energy for skiing and lodge operations, the conundrum faced by the industry is that the climate change caused by worldwide emissions could impact the sustainability of the snow and cold temperatures on which the industry relies.

"Currently, the ski industry faces an existential crisis as climate change threatens the core business asset..."[2] The shift to lower snow years in the Northern Hemisphere has already been noted in research and also in the anecdotal observations of helicat operators. Climate change is a concern, and will be a significant environmental factor for operations to consider when planning their future.

As outlined in the United Nations Sustainable Development goals, the challenge presented to the world is to reconcile the necessity and demand for modern and sustainable energy services with the impact on the environment and global natural resource base.[3] To put this into practice, the helicat industry should strive towards using renewable sources to meet its energy use needs, and maintaining practices that minimize its impact on the environment and natural resources.

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[1] United Nations. Sustainable Development Goals. https://sustainabledevelopment.un.org/topics/energy

[2] Knowles, N. (2017). Getting ahead of the avalanche; A Delphi forecast on how the ski industry can confront climate change risks by leading a sustainable tourism movement, pp. 6. https://drive.google.com/open?id=1fKDqW7YphtlGPDMNKlRHDTQA1Sb7f1Mx

[3] United Nations Sustainable Development Goals. Available at: https://sustainabledevelopment.un.org/topics/energy

HELICAT CANADA

A Common Interest in Energy Efficiency

Helicat operations have a vested interest in being as energy efficient as possible. The procurement and consumption of energy in the remote locations in which they operate can be one of the largest expenses within a business. Reducing these costs contributes to operators' economic sustainability as well as the overall environmental impact of energy use.

Helicat operators are aware of the efficiencies gained by reducing their demand for energy use. Policies are in place to minimize helicopter and snowcat running times, energy used by guests and staff at lodges, and transportation to their operations.

There is also a growing opportunity to produce renewable, sustainable energy to supply business operations. Many operators have invested in micro-hydro power plants, solar systems, battery storage and wood-burning stoves, water heaters and fireplaces to take advantage of renewable energy from the natural environment. Operations that are on the grid in British Columbia are fortunate in being able to purchase hydro-power electricity. However, in cases where the above is not available, operators still rely on burning natural gas, propane or diesel in generators to supply heat and electricity.

Operations impact energy use outside of their direct control as well. Energy use within supply chains, including importing goods and services, equipment production and waste management, is linked to operations. However, there is an opportunity for operations to align themselves with suppliers and partners who hold the same environmental values to reduce energy use through the supply chain.

Energy Related Challenges

There are many challenges that will face the industry in the future regarding energy use. The fundamental contradiction between helicat industry sustainability and burning fuel as an underlying business model makes working towards energy efficiency a difficult task that is more complex and long term than simply changing out light bulbs. However, this is a commonality around the world, and the industry is not facing the task of creating a solution to this challenge alone.

Some of the main challenges facing operations in terms of energy use are:

- **Fossil fuels**
  There is uncertainty in the future pricing of various energy sources, primarily Jet A and diesel fuel, and the resulting impact on operators' profit margins. However, current technologies don't provide for a satisfactory alternative to these fuels.
- **Increasing energy use demands**
  Increasing energy demands are becoming a challenge as technology and home comforts become more important for individual guests and for growing operations, even as operations become more efficient.

- **Lack of a baseline**
  The current lack of a way to measure baseline energy use, which would help benchmark and improve energy management practices, presents a challenge as progressive savings are not always discernible.
- **Raising capital for improvements**
  The upfront cost of improving energy use while maintaining economic sustainability is also a challenge for operations.

Operational Innovation, Research and Development

There is a need for continual improvement building upon energy use and emissions strategies. Although the industry sees opportunities for innovation to significantly reduce its energy use, the size of the industry limits its ability to research or develop the type of technologies needed to revolutionize fossil fuel-dependant processes. However, there are ongoing developments in the area of electric snowcats, advances in cold temperature battery capacity, clean, renewable, off-grid energy sources and biofuel replacements for Jet A and diesel fuels. The industry is watching and waiting for these changes to become feasible parts of its operations.

The Helicat Industry as a Model of Responsibility

For many helicat operations, the business case for sustainability drives a desire to operate efficiently. These members focus on ensuring profitability and providing an outstanding guest experience while recognizing the greater social and environmental limits in which they operate.

The helicat industry also has a unique ability to create positive connections between staff, guests and the natural environment. As an industry, we operate in the perfect setting to educate our audience about the necessity for action in the face of climate change. The direct connection to the natural environment that helicat guests experience when skiing in the mountains could lead these people, including investors, government workers, and business leaders, to realize the necessity of embedding sustainable energy use and considering climate change in their wider business practices.

While it is a difficult task to address sustainability in a carbon-heavy industry, operations have a multitude of opportunities to make significant strides in energy use, emissions and cost. The industry is passionate about skiing in mountain terrain, providing exceptional experiences to its guests, and striving for continual improvement in all aspects of operations. Energy use and carbon emissions are having an increasingly significant impact on operations, and there is a collective willingness to pursue opportunities that will preserve economic sustainability, guest and community relations and the natural environment on which operations depend.

Sustainability Standards

There are currently no regulations that govern the industry in terms of energy use. Because of this lack of regulation, this section is being used to call operations to benchmark their current use and set their own progress goals in efficiency and reduction of energy use.

HeliCat Canada, through consultation with Natural Capitalism Solutions (NCS)[4], has developed a series of tools specific to the industry, that will allow operations to measure their energy use and greenhouse gas (GHG) emissions from their operational energy consumption data, prioritize activities for increased energy efficiency, and benchmark progress towards their goals. The tools are customizable by operations and allow flexibility to accommodate their current operational priorities and capabilities.

Next Practice Guidelines

The *Next Practice Guidelines* provide a preliminary set of recommended strategies to consider when using the prioritization matrix. This is not a static list. New technologies and techniques will impact some of the strategies listed and provide opportunities to add new strategies. To maintain relevance, this list should be revisited occasionally to ensure it is current. This list also serves as a platform to spark innovative thinking among decision makers and employees of operations searching for sustainability solutions.

In addition to identifying impactful strategies, it is recommended that operations set sustainability goals, if they have not already done so. We cannot stress enough the power of setting measurable goals and tracking progress when pursuing sustainability. This can help operations assess the success of their sustainability strategies. Your goals can also be made public to both demonstrate your commitment to guests and encourage their participation. Sharing sustainability progress contributes to your social license and also helps an operation remain accountable to its own goal setting.

Building Efficiency Strategies

- Require all lighting to meet high efficiency standards:
  - Install LED or efficiency equivalent bulbs
  - Install motion sensor lighting fixtures indoors
  - Install motion sensor lighting fixtures outdoors
- Install programmable thermostats and set variable temperatures dependent on use
- Perform an energy efficiency audit and make recommended energy retrofit upgrades such as:
  - Insulating hot water pipes
  - Caulking and re-sealing windows
  - Re-insulating
- Improve hot tub efficiency and energy use:
  - Install high efficiency cover

[4] Natural Capitalism Solution. https://natcapsolutions.org/

    - Install automated controls
- Implement available renewable energy resources including:
    - Solar panels
    - Micro-hydro
    - Battery storage
    - Wood burning boiler
    - Geothermal heat pump
- Water heating
    - Use heat and power co-generators
    - Upgrade to high efficiency boilers
- Implement an automated system to track and manage energy use

Vehicle Efficiency Strategies

- Upgrade efficiency of vehicle fleet by introducing:
    - Hybrid snowcats
    - Biofuel vehicles
    - Electric or hybrid vehicles
    - Electric or hybrid snowmobiles
- Implement and enforce strict adherence to a no-idling policy by guests and staff
- Provide services to and from local airports including:
    - Consolidated pickups
    - Use of low-emission vehicles
- Implement and incentivize use of staff shuttle or carpool program
- Encourage efficient driving of vehicles by:
    - Tracking use and emission factors
    - Providing training on efficient operation of all vehicles in your fleet
    - Incentivizing safe and efficient operation of snowcats and helicopters
- Frequently inspect vehicles for:
    - Low tire pressure
    - Motor oil, air and fuel filter replacement
    - Component wear, alignment, or corrosion

Snowcat Efficiency Strategies

- Upgrade snowcat fleet by introducing:
    - High efficiency engine models
    - Tier 4 Emission Standard compliant models
    - Hybrid engine snowcats
    - Biodiesel as a diesel fuel replacement
    - Low viscosity and fully synthetic engine oil
- Plan, consolidate and optimize daily routes to reduce travel
- Reduce unnecessary weight from vehicle
- Install fuel consumption display and track use
- Implement, incentivize and enforce efficient snowcat driving strategies including:

    - No idling policy
    - Identify and maintain constant optimal efficiency speeds when driving snowcats
    - Minimize hard accelerations and braking
- Stay proactive on scheduled maintenance

Helicopter Efficiency Strategies

- Reduce helicopter weight by:
    - Removing unnecessary items from the cabin
    - Increasing accuracy of fuel calculations
- Reduce helicopter idle time by:
    - Evaluating ground idle times
    - Modifying pre-check procedures to reduce idle time
- Modify flights by:
    - Reducing flight times in bad weather
    - Getting to altitude efficiently
    - Planning to increase flight efficiency
- Increase maintenance efficiencies on helicopters by:
    - Researching liquid fuel additives to gain fuel efficiency and decrease maintenance
    - Staying proactive on scheduled maintenance
    - Ensuring surfaces are clean and tefloned for aerodynamics
    - Using a higher grade fuel to lower carbon build-up
    - Using synthetic oils to lower emissions and increase performance

Engagement Strategies

- Develop a stewardship pledge for guests to sign
    - (e.g. Palau Pledge or Jekyll Island Stewardship Pledge)
- Guest and employee stewardship
    - Introduce energy use protocols (e.g. turning off lights)
    - Incentive programs for reduced footprints (e.g. carpooling)
- Employee engagement
    - Train staff to be able to speak to guests about sustainability initiatives throughout the operation
    - Form an employee-run “green team” to pursue new sustainable solutions within your operation
- Trip carbon offsets
    - Initiate a program through which guests can offset all or a portion of their visit

External Partnership Strategies

- Encourage research and development of efficient, low-emission snowcats and helicopters through:

    - Partnerships with suppliers and manufacturers
    - Partnerships with universities, researchers or other innovators
    - Assistance in testing and providing feedback on innovations
- Commit to sourcing from local businesses including:
    - Food
    - Employee uniforms and branded apparel
    - Gift shop items
- Grow your sustainable brand by aligning with sustainable organizations such as:
    - Protect Our Winters
    - Natural Capitalism Solutions
- Support sustainability action in your local community
- Encourage the local utility provider to transition to renewable resources
- Fully offset any remaining energy emissions
    - Preferably from local offset sources
- Obtain an International Sustainability Certification such as:
    - Mountain IDEAL Destination Standard
    - Greenkey
    - Biosphere Sustainable Tourism
    - STOKE Certified

Conclusion

Energy use is synonymous with helicat operations. However energy efficiency is also a necessary consideration that has a large impact on profitability, given the high costs of operating helicopters, snowcats and lodge accommodation in remote and backcountry settings. It is in the best interests of operators to reduce their energy use, and the current dedication and attention of the industry to better energy use practices highlights this importance. However, there is always room for improvement in reducing energy consumption, especially with advances in technology. The process of measuring and benchmarking progress will allow operators to be continually mindful of their energy use and prioritize its reduction now and in the future.

Resources

Natural Capitalism Solutions

Natural Capitalism Solutions was consulted to develop a prioritization matrix to help operators prioritize actions that are most beneficial given their internal goals for sustainability. This project also resulted in an energy use and greenhouse gas calculator to assist operations with an industry specific solution for setting energy use goals and tracking progress.
Prioritization Matrix - Available at the HeliCat Canada Members' Only Site
Energy Use and GHG Calculator - Available at the HeliCat Canada Members' Only Site