

December 17, 2020

WEBINAR

**INTEGRATING RENEWABLES
IN REMOTE COMMUNITIES:
HOW AND WHY**

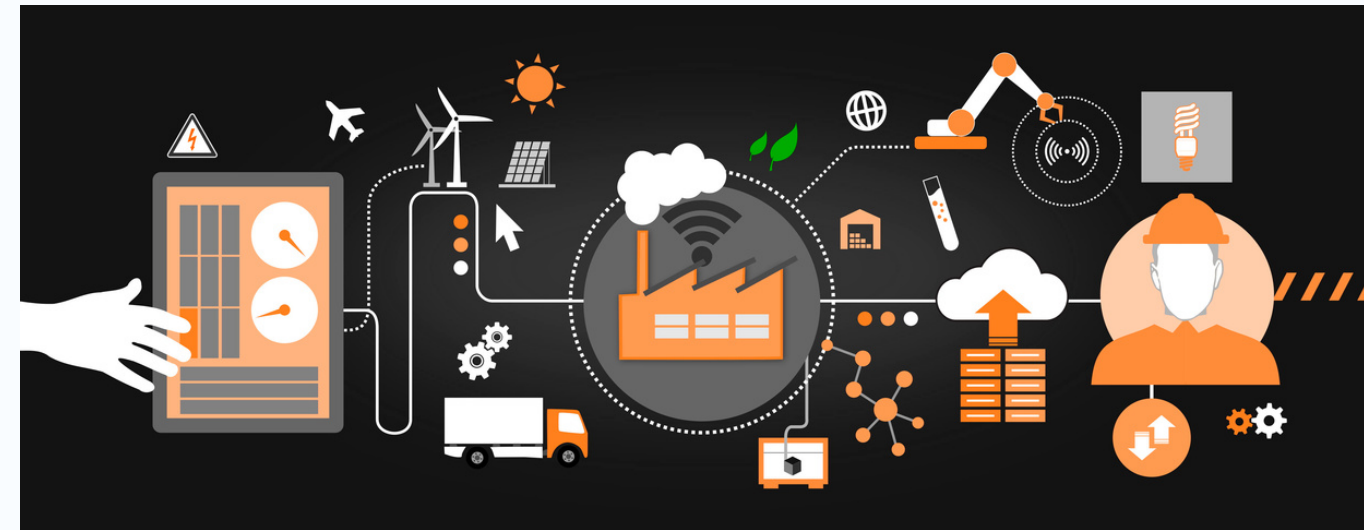
WHAT

- For my community, what are the advantages of integrating more renewables as compared to other energy sources?
- How do I go about integrating renewables on my remote community grid?
- Are all technologies for renewable energy production equal?

HOW



How do I make wise decisions to improve the acceptability of renewables and the associated return on investment for my community?



How can I integrate a renewable energy project while building capacity for my community and supporting its economic development at the same time?

We understand that it is very difficult to find a partner with a neutral, agnostic opinion about renewable technologies.

Nergica

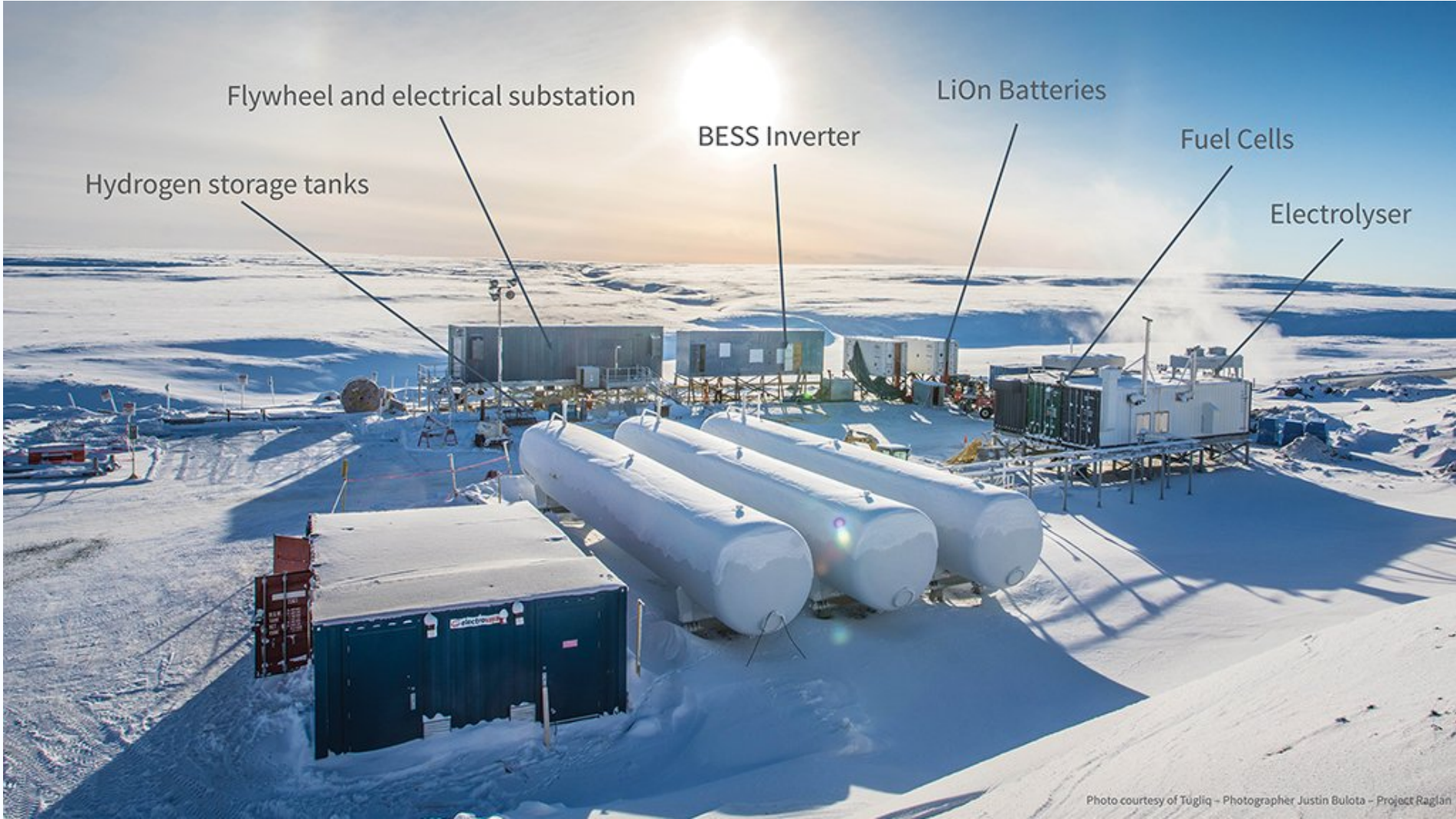
+ 20

ongoing renewable energy integration projects

Completion of mandates ranging from

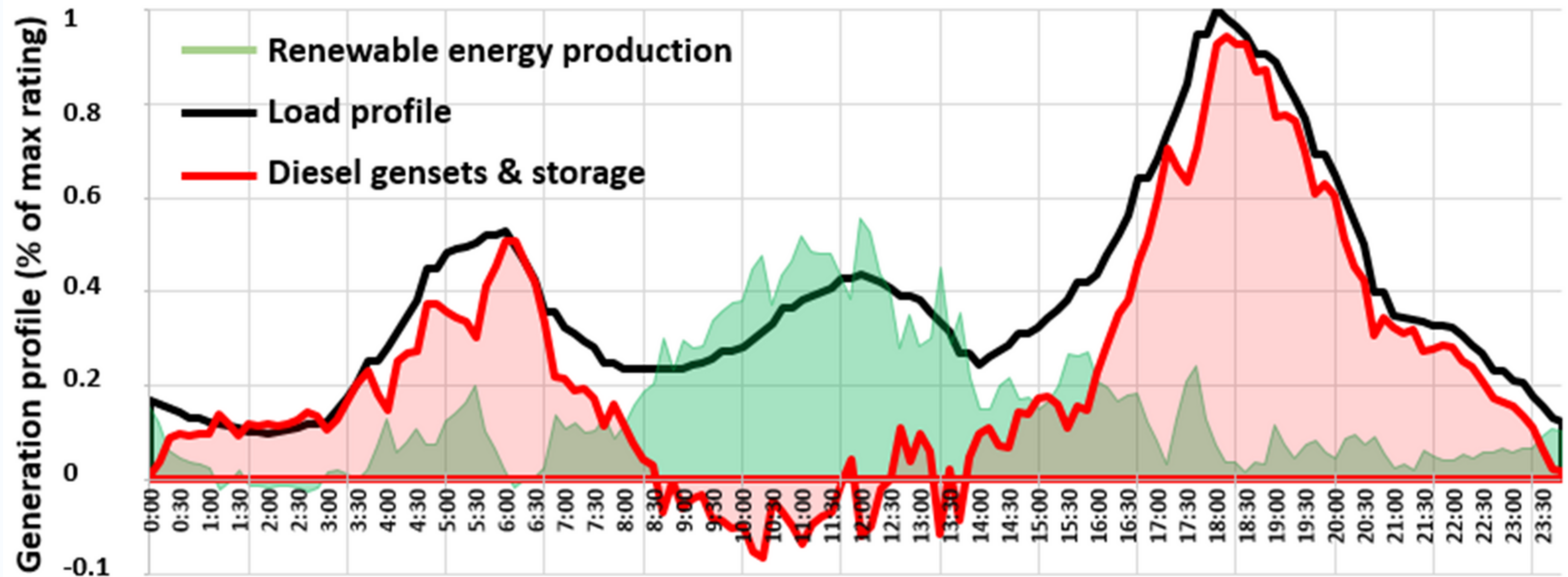
**20 hours
to over
2,000 hours**

MICROGRID FIRST! RENEWABLE NEXT



Source : www.miningweekly.com

PRODUCTION AND LOAD MANAGEMENT



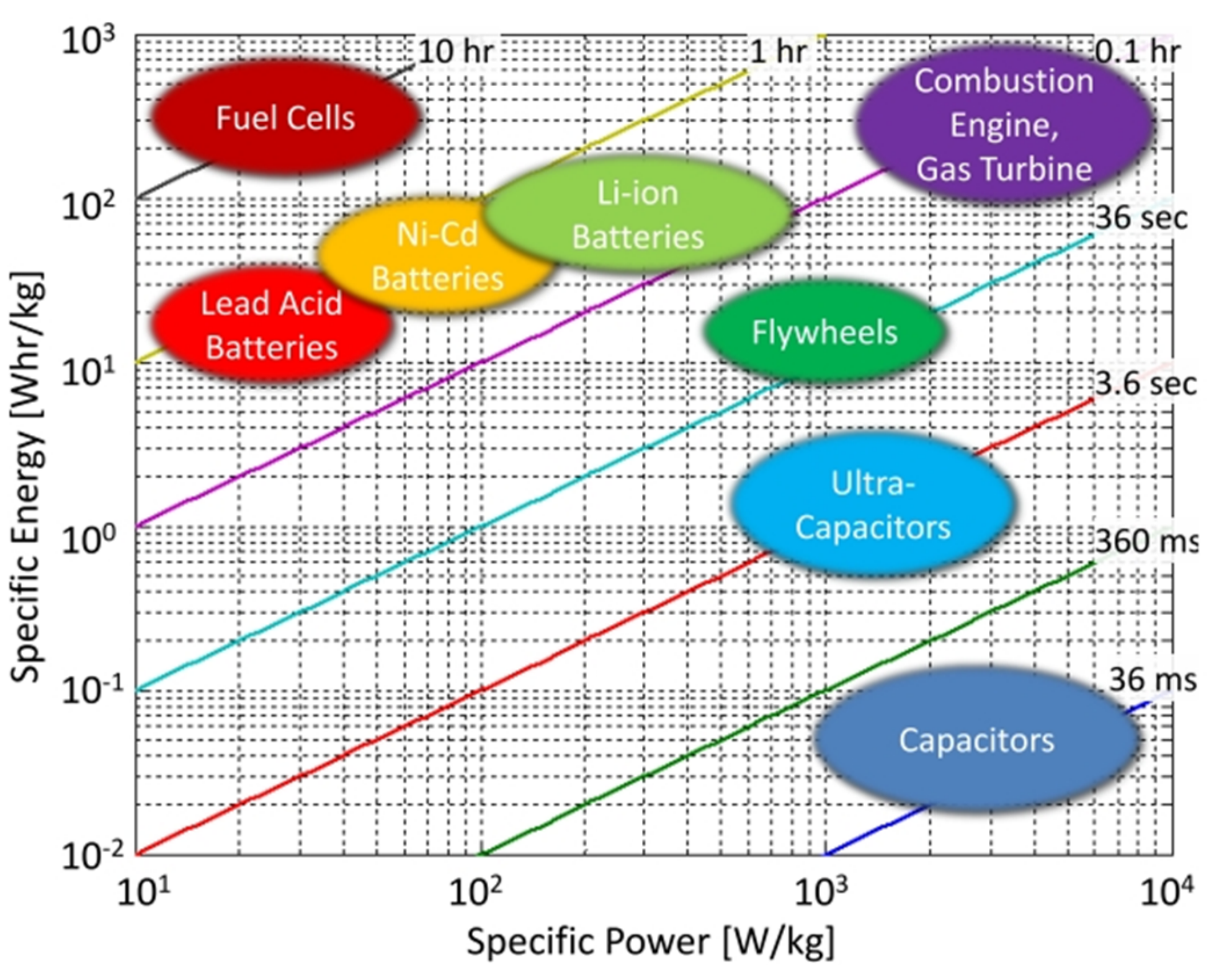
PRODUCTION AND LOAD MANAGEMENT

PENETRATION CLASS	OPERATING CHARACTERISTICS	PENETRATION PEAK INSTANTANEOUS	PENETRATION ANNUAL AVERAGE
LOW	Diesel operates full-time Wind power reduces net load on diesel All wind energy goes toward primary load No supervisory control system	<50%	<20%
MEDIUM	Diesel operates full-time At high wind power levels, secondary loads dispatched to ensure sufficient diesel loading or curtailment of wind generation	50-100%	<20%
HIGH	Diesel may be shut down during high wind availability Auxiliary components required to regulate voltage and frequency Requires sophisticated control system	100-400%	50-150%

Sources :
<https://www.nrel.gov/docs/fy09osti/44679.pdf>
https://iseralaska.org/static/legacy_publication_links/wind_diesel10022010.pdf

READY TO CHOOSE?

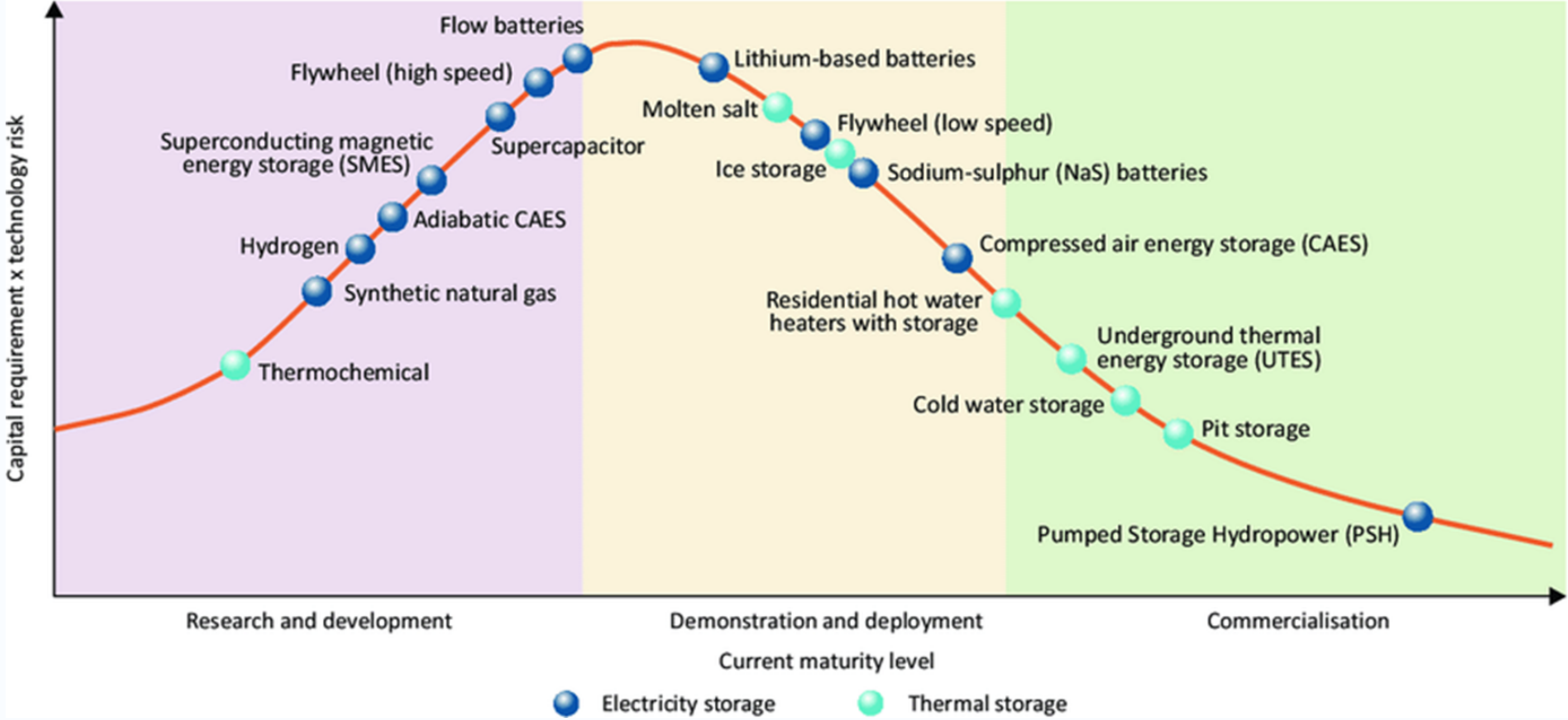
SOME EXAMPLES FOR STORAGE



Source: www.researchgate.net/figure/Ragone-Plot-of-Energy-Storage-Devices-5-6_fig2_306240899

READY TO CHOOSE?

SOME EXAMPLES FOR STORAGE



Source: www.researchgate.net/figure/Maturity-of-energy-storage-technologies_fig1_261848307



INDIGENOUS
CLEAN ENERGY





Who we are and what we do

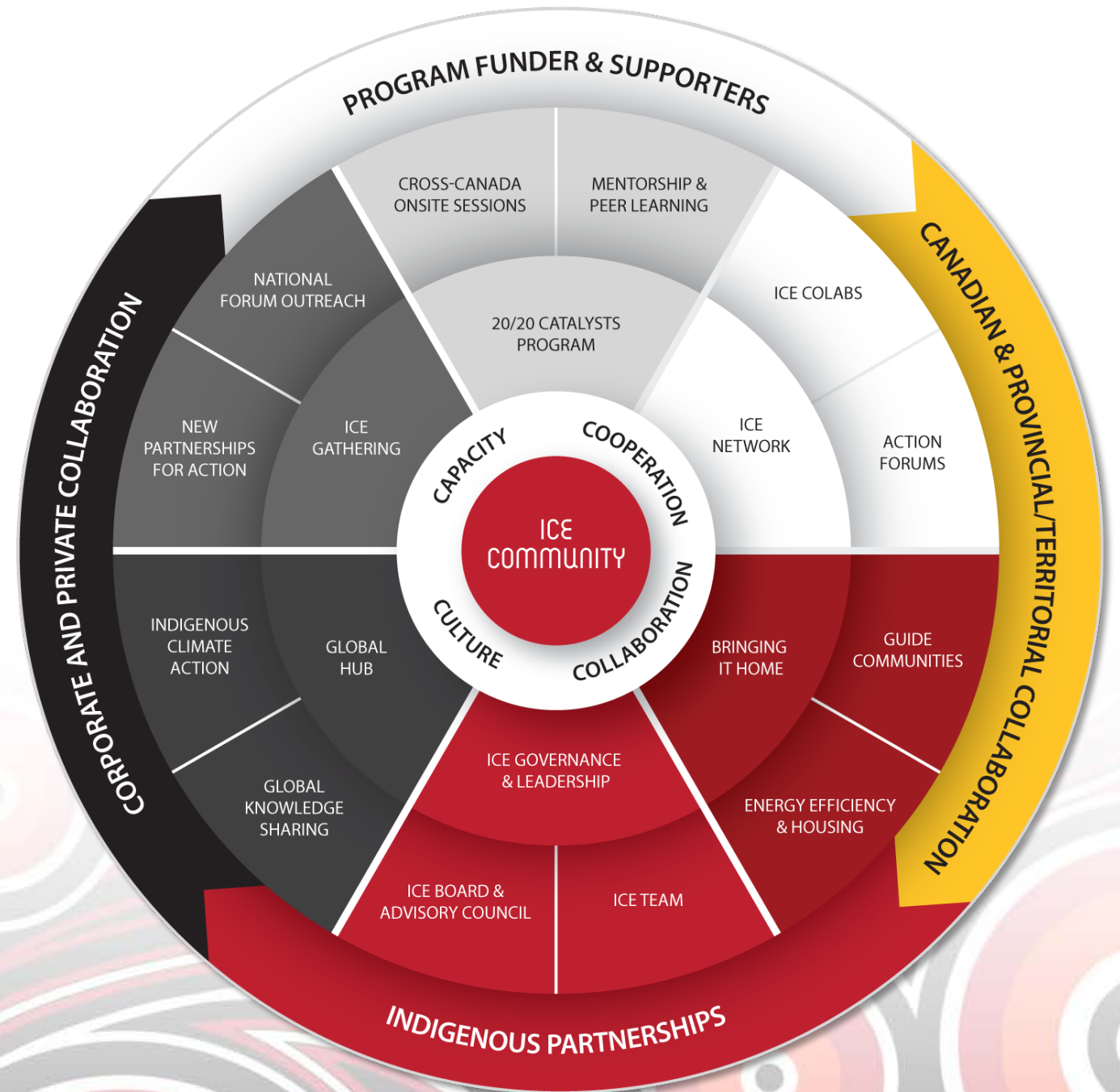
Indigenous Clean Energy (ICE) Social Enterprise is an independent, Indigenous-governed, nonprofit organization.

ICE works to advance Indigenous and broader sustainable prosperity by supporting **First Nation, Métis, and Inuit clean energy participation** in every region of Canada.



ICE Programming

- » Grounding work in Indigenous culture
- » Centered around community with an emphasis on:
 - Building Capacity,
 - Fostering Cooperation,
 - Facilitating Collaboration, and
 - Engraining Culture





20/20

CATALYSTS

Building Indigenous clean energy **leadership**
and capacity.



ICE

NETWORK

Enabling broad-based **collaboration** on clean
energy efforts.



Coast to Coast to Coast





 20/20
CATALYSTS





ICE GLOBAL HUB

Promoting international Indigenous **co-operation** on clean energy.



BRINGING IT HOME

Scaling up community **energy efficiency** efforts.



THE ~~*GATHERING*~~

Bringing together the ICE community
to **connect on action**.

- The Gathering is our annual pinnacle event.
- It is an intensely interactive retreat focused on how the ICE community takes things deeper, to catalyze more Indigenous clean energy impact.
- A space to share knowledge and experiences to creating a future that embodies energy democracy, Indigenous leadership, inclusive prosperity, Indigenous entrepreneurship, climate action, and ecological protection.



In **2021**, we
are going
virtual!

ICE
E-GATHERING

January 18-22, 2021

Interaction • Insight • Innovation

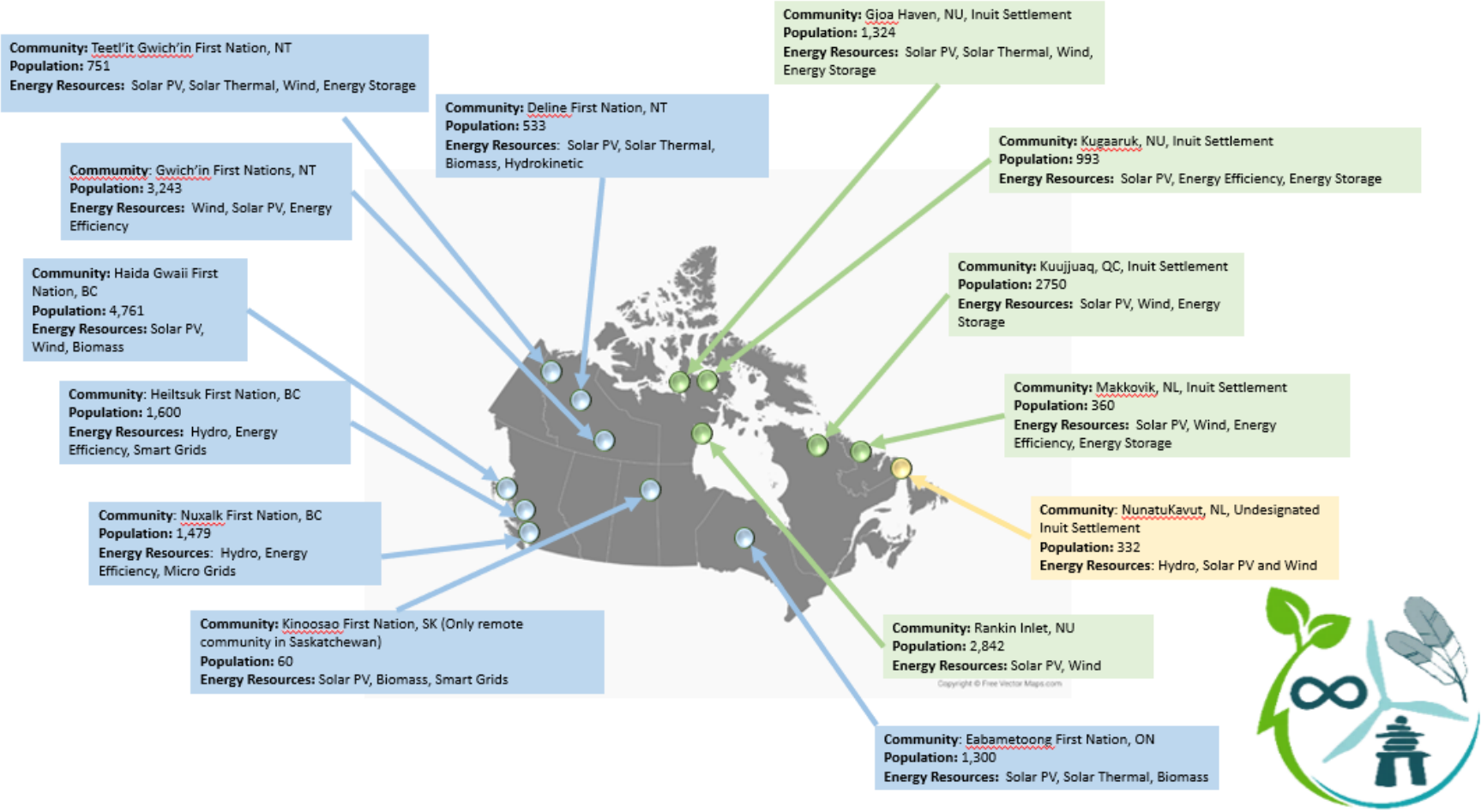


Technical Mentorship Support

Impact Canada

Generating New Opportunities: Indigenous Off-Diesel Initiative

15 Community Energy Champions



Community: Gwich'in First Nations, NT
Population: 3,243
Energy Resources: Wind, Solar PV, Energy Efficiency



Community: Kuujuaq, QC, Inuit Settlement
Population: 2750
Energy Resources: Solar PV, Wind, Energy Storage

Community: Rankin Inlet, NU
Population: 2,842
Energy Resources: Wind, Biomass, Waste to Energy





Kuujjuamiut Inc



Technical Mentorship Support from Nergica

- Perform high-level review of 100 kW roof-top solar PV proposal in terms of costs and technologies.
- Determine if the training offer included in this proposal is suitable to enable trained personal for installing other PV systems in similar conditions.
- Provide technical and technological recommendations on vehicle charging stations integration at the arena and arena garage, depending on community needs.
- Review the design of the horizontal geo-thermal heat pump system proposed to offset the swimming pool heating costs (located adjacent to the Arena).
- Estimate the suitability of the 100 kW PV system for feeding the heat pump electric load during summer.



Nihtat Energy Ltd



Technical Mentorship Support from Nergica

- Review two project description documents for the biomass supply chain and the solar farm;
- Assess medium and large electric vehicles suitability for northern environments and long distances;
- Describe the high-level infrastructure requirements for supporting pellet distribution in the Northern based on the pellet mill project description;
- Analyze the solar farm project description;



Sakku Investments Corporation
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Sakku Investments



Technical Mentorship Support from Nergica

- Perform a high-level comparison on the three options regarding heat loads.
- Provide recommendations regarding technical, technological and financial aspects of these three alternatives.
- Provide a short overview of the potential effects of cold climate on the performance and useful life of PV modules.
- Provide a brief technical note with the findings and recommendations



Funding Opportunities

Navigating Funding Programs: Where to start

Examples of funding webpages:

- [Natural Resources Canada Funding Programs](#)
- [Environment and Climate Change Canada Funding Programs](#)
- [BC Government Innovative Clean Energy Fund](#)

Search engine tips

- Keywords like “Government of Alberta Funding” or “Government of Canada energy funding” will give a starting point (www.canada.ca is also helpful) □ Click around, use available filters, check out any “you might also be interested in” links that come up • Bookmark/Favourite funding pages you find

Federal Clean Energy Funding Programs

Currently Open Funding Programs

- **Crown-Indigenous Relation and Northern Affairs:**
 - Northern REACHE: \$53.5M over 10 years starting in 2018/19, and \$5.4M ongoing (renewal of existing program). Established in 2003 as a national program
- **Infrastructure Canada*:**
 - Arctic Energy Fund: \$400M over 11 years starting in 2018/19 (e.g. Nunavut allocation \$175M)
 - Green Infrastructure Stream: \$9.2 billion for green infrastructure over 11 years starting in 2018/19 (e.g. Nunavut allocation \$207M)
 - Rural and Northern Stream: \$2 billion for rural and northern infrastructure over 11 years starting in 2018/19 (e.g. Nunavut allocation \$152.5M)
- **Department of Indigenous Services Canada**
 - The First Nation Infrastructure Fund (FNIF) could be leveraged to optimize the use of energy and reduce reliance on diesel in First Nation communities.

Currently Closed Funding Programs

- **Natural Resources Canada:**
 - Clean Energy for Rural and Remote Communities: \$220 million (M) over 6 years starting in 2018/19 (5 program elements)
 - Impact Canada Initiative: \$75M over 4 years starting in 2017-18 (\$20M for Generating New Opportunities: Indigenous Off-Diesel Initiative)
- **Environment and Climate Change Canada*:**
 - Low Carbon Economy Fund: \$2 billion over five years starting in 2017-2018

Key Links

- Federal:
 - <https://www.nrcan.gc.ca/energy/funding/efficiency/>
- Saskatchewan:
 - [Saskatchewan Ministry of Energy and Resources | Ministries | Government of Saskatchewan](#)
- Quebec:
 - [Programmes | MERN \(gouv.qc.ca\)](#)
- Ontario:
 - [Ministry of Energy, Northern Development and Mines | Ontario.ca](#)
- NWT:
 - [Home Improvements - Arctic Energy Alliance \(aea.nt.ca\)](#)
 - [Energy | Infrastructure \(gov.nt.ca\)](#)

Key Links

- NFLB:
 - [Programs and Funding - Industry, Energy and Technology \(gov.nl.ca\)](http://gov.nl.ca)
- Manitoba:
 - [| Energy | Conservation and Climate | Province of Manitoba \(gov.mb.ca\)](http://gov.mb.ca)
- BC:
 - [Ministry of Energy, Mines and Low Carbon Innovation - Province of British Columbia \(gov.bc.ca\)](http://gov.bc.ca)
- Yukon:
 - [Department of Energy, Mines and Resources | Government of Yukon](http://gov.yk.ca)



For Indigenous Remote Communities

STEPS TO FOLLOW

1

Email
Eryn Stewart
estewart@indigeno
uscleanenergy.com

2

Fill out the form
sent by Eryn
Stewart.

Verification of your
eligibility

3

ICE and Nergica
sign a technical
mentorship
agreement.

4

Nergica technical
analysis
completed.

For any other type of community or a business

STEPS TO FOLLOW

1

Visit
[nergica.com/
funding](https://nergica.com/funding)

2

Fill out the form.

Verification of your
eligibility

3

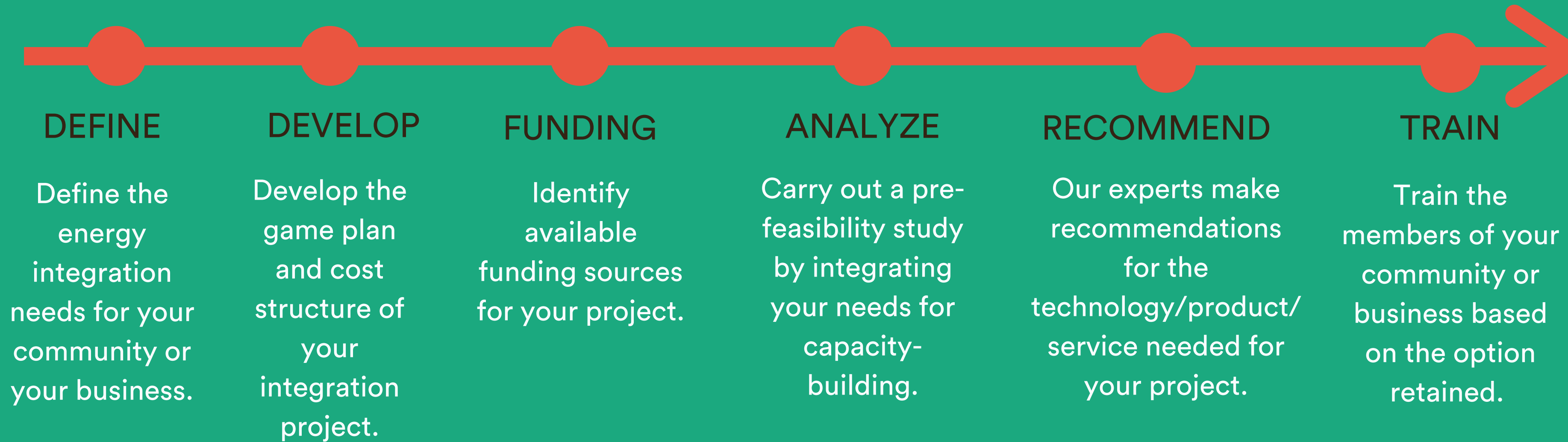
Sign the service
agreement with
Nergica.

4

Carry out your
project and
achieving your
autonomy.

STEPS FOR ACHIEVING AUTONOMY

TOGETHER WE WILL ...



WHY INTEGRATING RENEWABLES IS A MUST



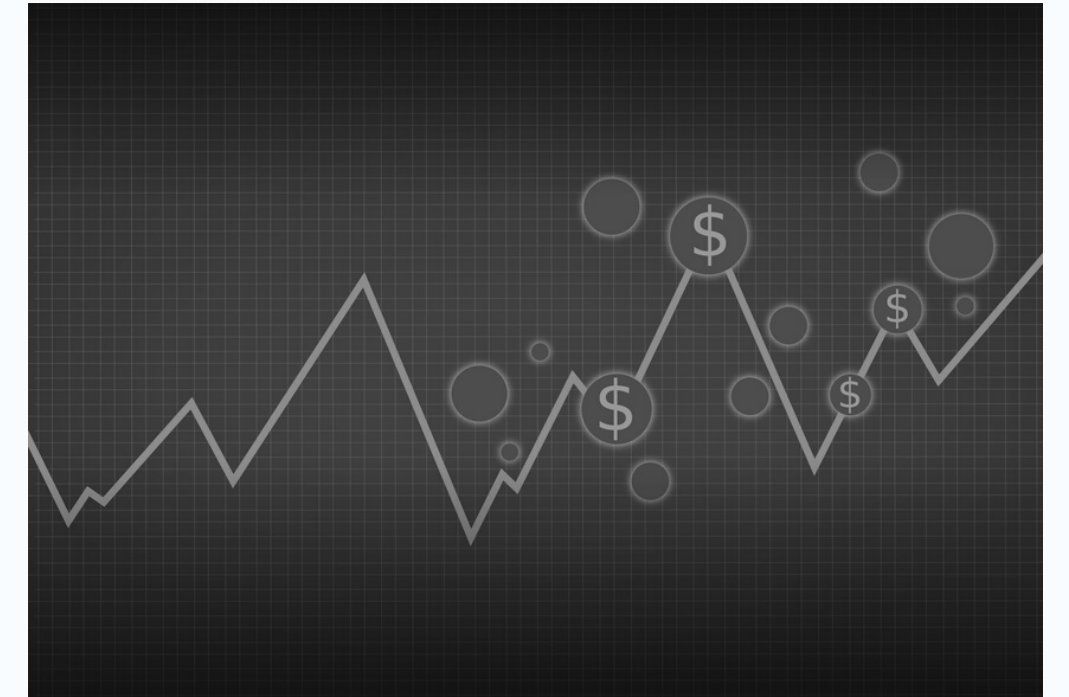
FOR YOUR COMMUNITY

Ensure the energy security of your community while contributing to the energy transition.



FOR REDUCING GHG

Reduce your electricity production using harmful fossil fuels.



FOR HEALTHY ECONOMICS

Reduce your electricity production costs while generating economic and social benefits for your community.

EXPAND YOUR KNOWLEDGE ON ENERGY



PLAN YOUR ENERGY MANAGEMENT

Develop an energy plan based on an agnostic choice.

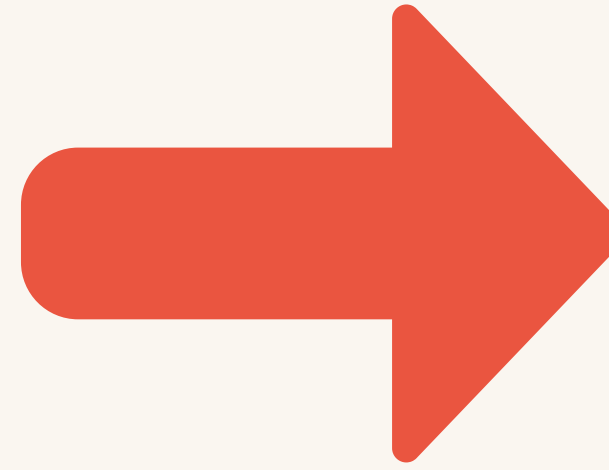
CAPACITY BUILDING

Integrate capacity building just as much as renewables.

DEVELOP A CRITICAL VIEW

Develop your critical eye about renewable energy and their technologies.

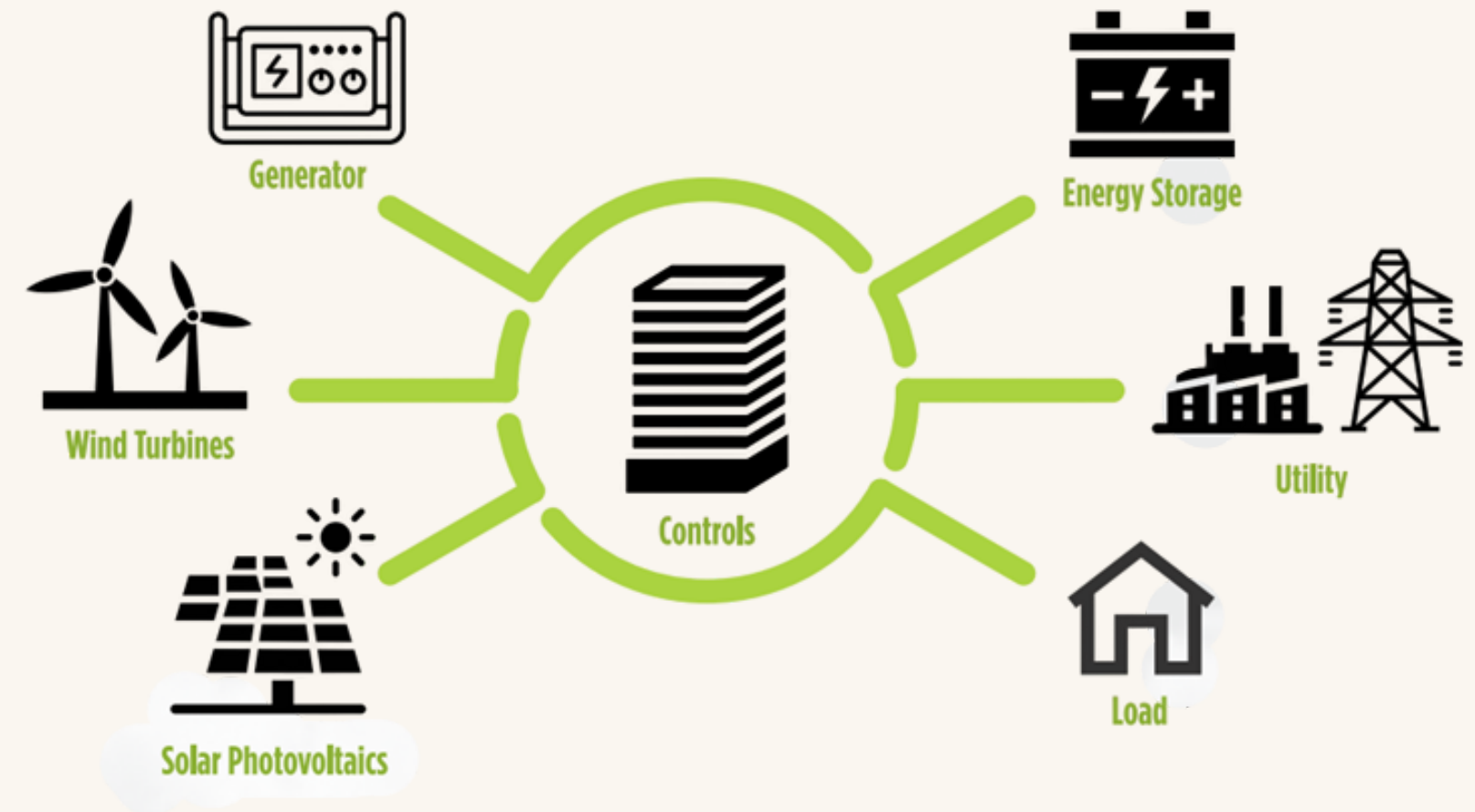
FROM
FOSSIL FUEL



TO RENEWABLE
ENERGY



Generator



SUBMIT YOUR PROJECT TODAY!

Indigenous Remote Community: estewart@indigenoucleanenergy.com

Any other type of community or business: nergica.com/funding



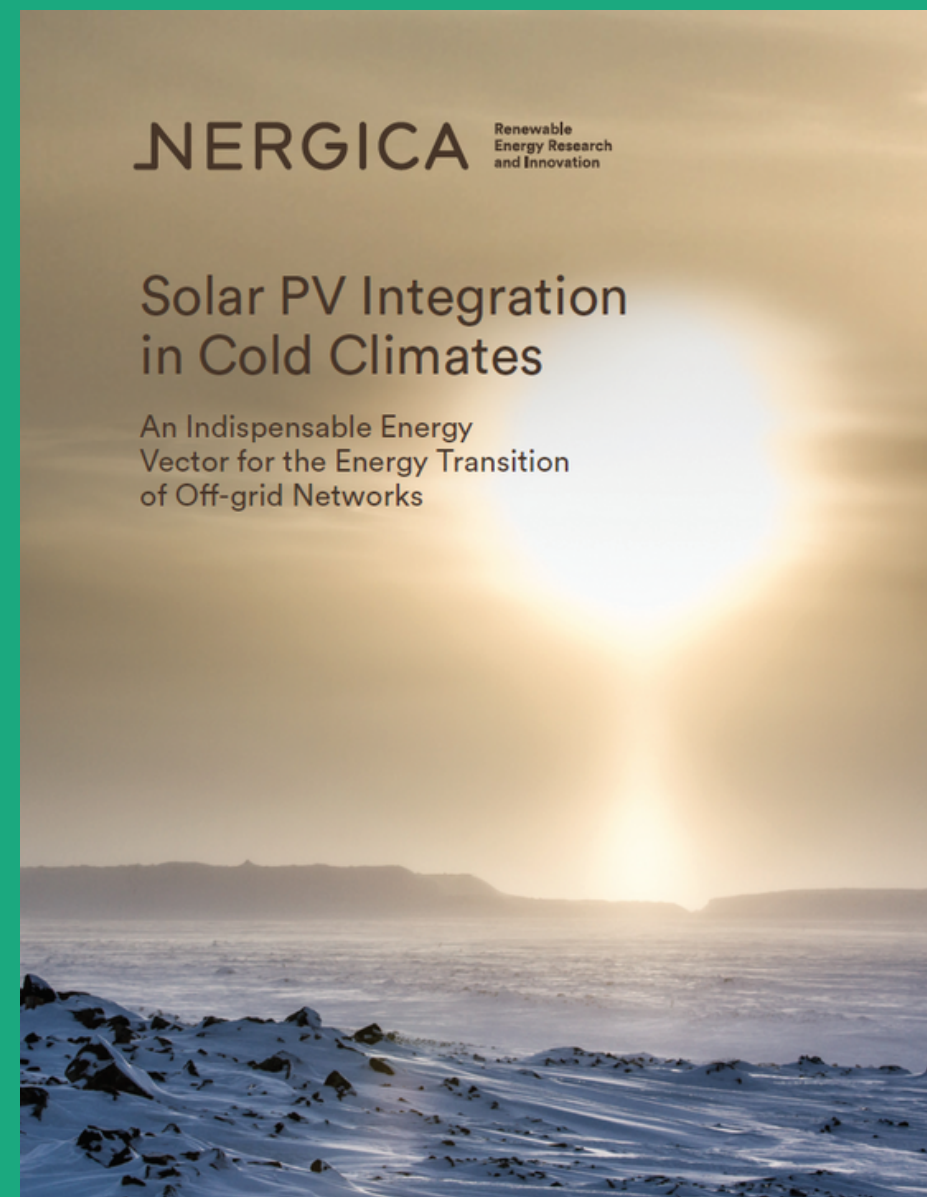
QUESTIONS?



LEARN MORE

White paper by Nergica

Solar PV Integration in Cold Climate



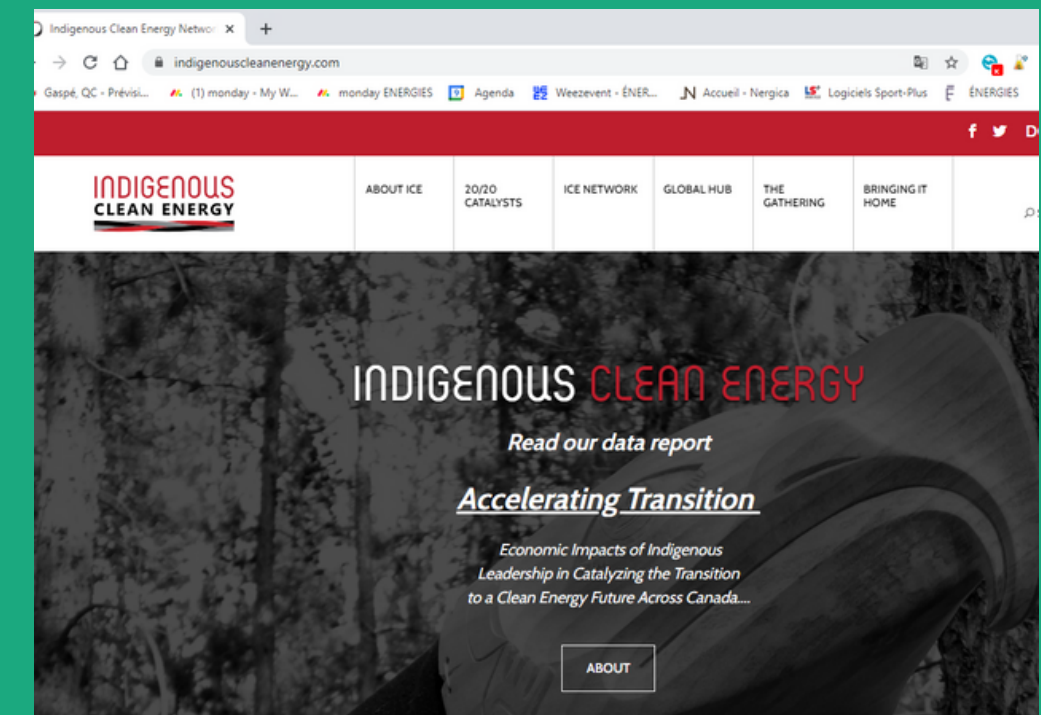
White paper by Nergica

Stand-alone Microgrids: A Major Asset for the Electrification of Off-grid Sites



Website

Indigenous Clean Energy



GET UPDATES ON RENEWABLE ENERGY

nergica.com/en/newsletter

nergica.com/infolettre

CONTACT US



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