



AGNICO EAGLE

IMPACTFUL USE OF LOCAL RESOURCES

A stepping stone to unlock the mineral potential



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Presented by
- Nunavut Energy Optimization



Goals of the presentation

- Highlight the challenging context of mining in Nunavut
- Overview the environmental and financial impacts of reliance on diesel
- Present the initiatives put forward by AEM
- Overview the portfolio of technologies to address the energy issue
- Discuss the most promising scenarios
- Plant a seed for potential partnerships and business opportunities
- Opportunity to ask questions
- Generate great discussions



Cost of mining in Nunavut

“Premium associated with developing a remote and northern mine ranges from 2 to 2.5 times the cost of a comparable mine in a southern region ”

2017 Facts & Figures of the Canadian Mining Industry

Mining Association of Canada



Large scale energy challenges

- 2 power plants in Nunavut 100% built and operated by AEM
 - 60MW of installed generating capacity
- 130M liters of diesel YEARLY to support Meliadine and Meadowbank operations
 - Approx 60% (80M liters) dedicated to produce electricity
- Cost to produce energy approx. 25-27 cents / kWh (6 X more than southern operations)
- Cost of electricity = 10% - 15% of total costs / oz in Nunavut
- 340 000t GHG emissions per year for mining activities and electricity production



X 75 000!!

Carbon tax = additional burden to develop the arctic

Electricity generation

Pan-Canadian efficiency baseline : 420 t GHG / GWh_e

**Agnico Eagle is
actively involved
with MAC**

- Re-Invest to Do Good
- Different operating context

Make/model	Fuel	Specific GHG Production (t/MWh _e)
Wärtsilä 12V32	Arctic diesel	625
Caterpillar 3616	Arctic diesel	660
Caterpillar 3516	Arctic diesel	750
Wärtsilä 12V34DF	Natural gas	420



Extensive reliance on diesel....beyond the numbers

□ Environmental risk

- Transportation (main ships / barges loading & unloading / tanker trucks on long distance)
- Storage facility
- Manipulation

□ Logistic challenges

- Tight sea-lift season
- Autonomy
- All weather access road conditions

□ Highly dependent on an external resource

Status quo is not an option



November 9th 2017

**Nunavut Strategic
Energy Workshop**

Time is of the essence



Nunavut Energy Optimization

Vision statement

Support the Nunavut strategic plan by implementing reliable and sustainable alternate energy supplies that will enhance the capacity to mine in the arctic.

Mission statement

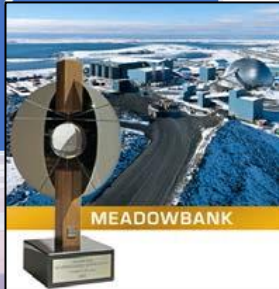
Maximize the use of local sources of energy and promote an awareness culture

GOALS - A step by step approach

...up to now 2018 – 2022



**Optimize
Current
systems**



**Alternative
Energy
Portfolio**

2023+

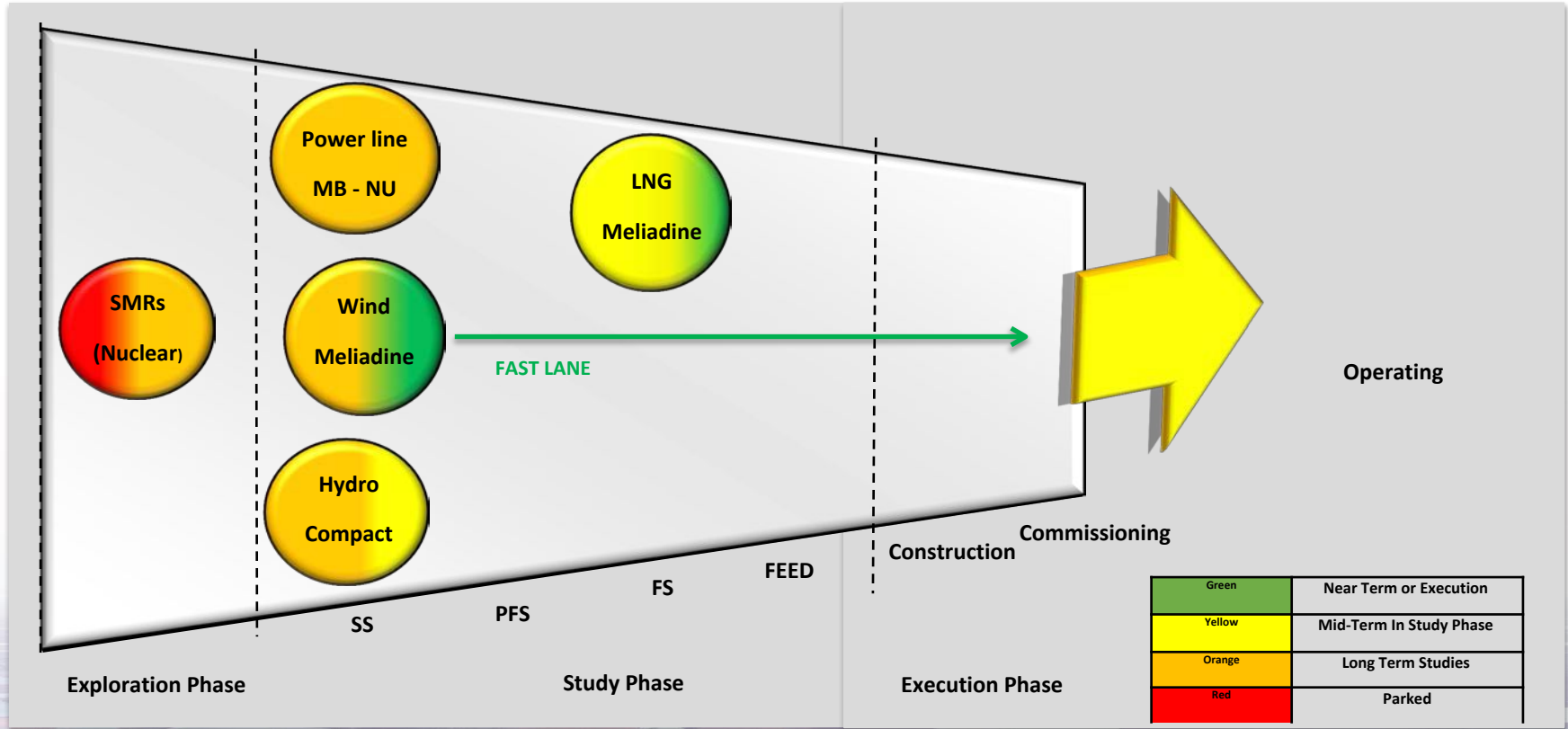


**Electrify
the
Work**

Target of -10% to -25% diesel



Projects pipeline



Manitoba – Nunavut power line

□ Kivalliq communities average load (along power line)

– Arviat	1	MW
– Whale Cove	0.25	MW
– Rankin Inlet	2	MW
– Chesterfield Inlet	0.3	MW
– Baker Lake	1	MW

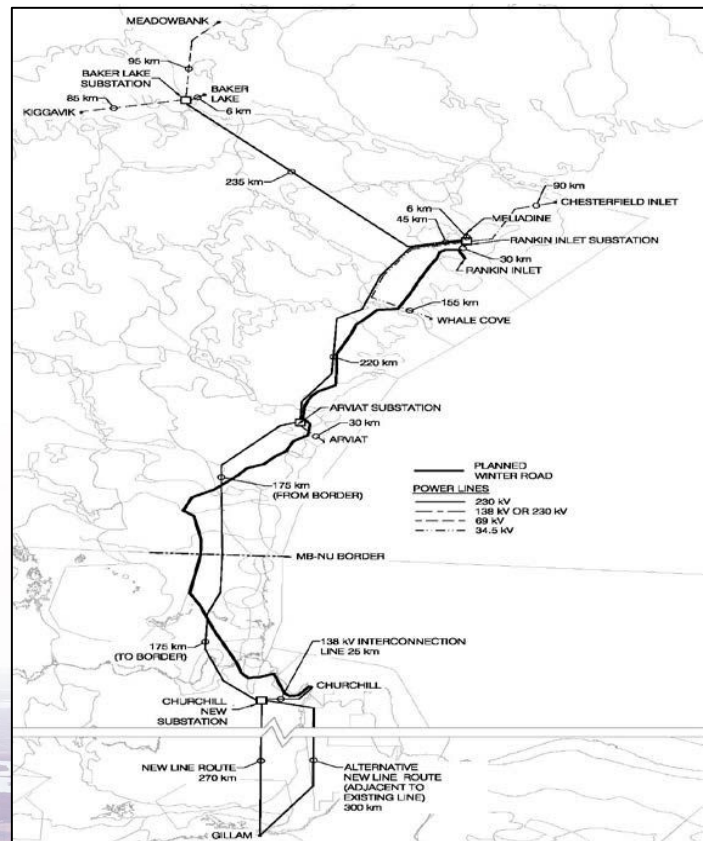
Total
: 4.6 MW*

□ Meadowbank average load 16 MW++

□ Meliadine forecasted average load 24 MW

Total : 40 MW

AEM is the biggest consumer by far



- The power line is the long term solution

- ❑ **A power line has some drawbacks**

- Power independence

Nunavut would be fully dependent on Manitoba

□ Reliability

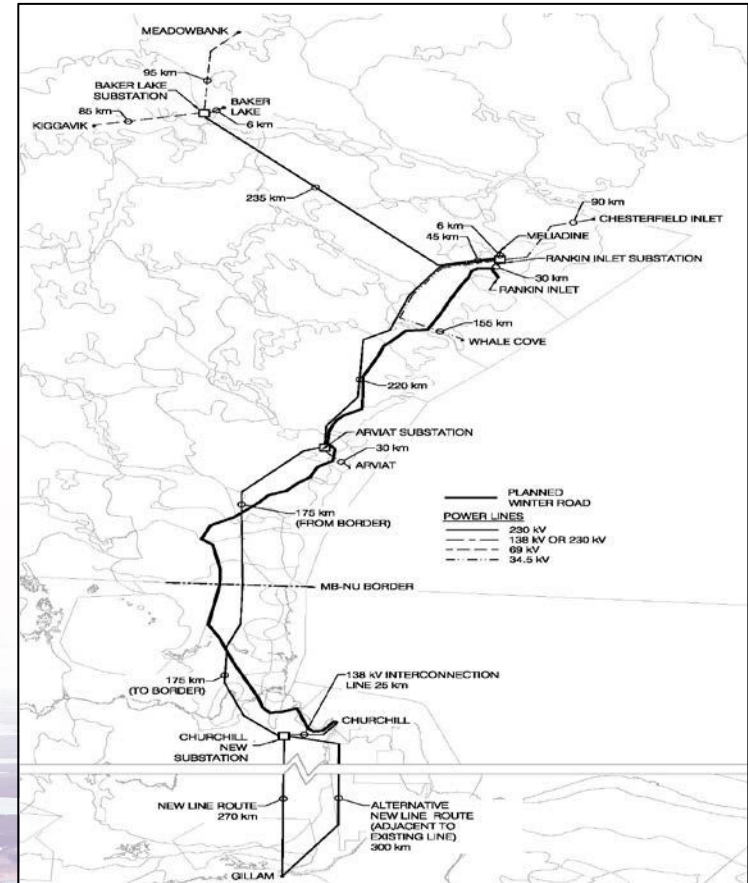
No redundancy

Only backup is diesel (if sufficient)

Timing

10+ years to permit and build

Landmark : Wataynikaneyap





Clean Energy for Nunavut can be fast and simple

□ The best **short-term** alternative is a wind-diesel micro-grid because it is:

- **Quick** Could be built in 3 years
- **Proven Technology** Landmarks : Diavik, Raglan
- **Independent** Would provide clean Nunavut made power
- **Economic** The project pays for itself

□ Advantages of partnering with Agnico Eagle :

- Local credibility
- Proven strong capacity to deliver large scale projects in the arctic
- Northern logistics expertise
- Actively involved in developing local capacity



Option 1 - Small scale wind farm at the mine only

Wind farm : 1 up to 6 wind turbines + storage

Location : Meliadine

Environmental benefits

-30% diesel / - 36 000t GHG per year

Business opportunities

Small scale wind farm construction, supplies, O&M

Requirements : Federal funding





Option 2 – Innovative micro-grid for the Kivalliq

Wind farm : Up to 15 wind turbines + storage + connect Rankin

Locations : Meliadine , Rankin Inlet , Baker Lake , Arviat

Environmental benefits

-45% diesel / - 55 000t GHG per year (for the mine only)

Multiple business opportunities

- Large size wind farm construction in multiple locations
- Sell wind power (JV - multiple ownership scenarios)
- Create jobs (Operation & maintenance of wind farms)
- Export skillset to develop other renewable projects in Nunavut

Requirements : Federal funding

Local support is key to secure the funding



**World's largest
wind-diesel
micro-grid**



The Concept : Clean power for 7,500 Kivalliq residents



- 100% local Inuit owned
- Generate significant savings and GHG emission reductions
- Pay for itself before a power line is built
- Provide an independent source of power

The Fed is currently reaching out to AEM for the next steps

There is momentum for
A Powerful Legacy



Key success factors and opportunities

- The Kivalliq needs impactful initiatives deployable **in the short term** such as the wind farm to :
 - Maintain a favorable context of growth for the mining sector and communities
 - Reduce operating costs to unlock more mineral resources
 - Protect the industry sector from commodity price volatility

Secure the load for a future power line to come

- 100% local Inuit owned JV to generate significant revenues **in the short term** by selling wind power
 - Re-invest revenues in building local capacity
 - Re-invest revenues in developing local infrastructures (roads & electrical connections)
 - Re-invest revenues in telecommunication (ex. Subsea optic fibre)
- Long term opportunity : Sell Nunavut wind power back south over the future power line

Strategic positioning towards a common goal :
Connecting the North



Ongoing activities and next steps

- Provide letters of local support to the Fed to secure the funding
 - Keep reaching out to local groups, business owners, government
- Select the business partners and develop the best ownership structure (JV)
- Continue environmental assessment
- Deliver the technical feasibility study by the end of 2018
- Focus group consultations to start soon
- Public hearings to come next year

Let's work together

It's time to make impactful decisions

We have the potential
to transform the future
of Nunavut for
generations to come
with multi-decades of
benefits in terms of
continuous
employment and
financial benefits for
the communities

