

### **The Case of the Mammoth Energy Company (MEC): An Upgrade to its Airstrip Infrastructure**

MEC is based in Hy-Breasal, a large fictional oil-rich island nation located off the fictional coast of the fictional continent of Eufrazia. See the Quick Facts box (**Exhibit 3**) on Hy-Breasal for important information of the country.

The firm employs 30,000 staff and almost double that number in contractors, across a total area of nearly 900,000 square miles in Hy-Breasal. Moving equipment and staff between their refineries, solar, and wind farm installations requires an enormous fleet upgrade to its internal transportation infrastructure, including, especially of note for this case, the installation and maintenance of airstrips. An **airstrip** is defined as “an aircraft landing field, usually with one runway and only basic facilities.” See **Exhibit 0** for an example of one of MEC’s airstrips.

#### **Background**

MEC has been granted exclusive oil and gas rights for operations in Hy-Breasal. This includes exploring, drilling, refining, and distributing oil and gas products. They also have permits to build and operate several very large solar and wind power generation stations, as well as some experimental pilots of new solar and wind technology. As such, MEC requires a massive network of logistics, air, and land to transport workers and equipment across the country. Some locations are remote, and in an extremely harsh environment surrounded by moving dunes in some locations where the nearest village is up to 100 miles away. As early as 1930, when MEC oil

production started, airstrips were constructed across MEC's Hy-Breasalian company locations, wherever there is a need to serve the business and cover the vast distance. Some areas are difficult to reach on land due to the harsh topography, steep mountains, or moving sand dunes that could bury a road in less than one month; thus, air transportation is the optimum means of transportation.

The company currently owns 16 airstrips (See **Exhibit 0**) across the country (See **Exhibit 1**) to transport employees, contractors, and cargo to serve the business in general. These airstrips vary in age; some are as old as the 60 years. Aside from these airstrips, MEC uses some of the Hy-Breasal's regional airports to land and fuel if needed for a (fairly high!) fixed rate charged by Hy-Breasal authorities to MEC. The company owns four aircraft with up to 80-person seating capacity per aircraft and smaller airplanes used for oil spills, solar panel repair, medical evacuation, employee field training, and surveys. It also has several private jets for executives and customer tours.

### **The strategic value behind the upgrade**

One of the MEC's primary and strategic values is to "invest in energy efficiency, as the well-being of future generations depends on how well we manage energy consumption".

Environmental performance is as valuable as business performance, which means no shortcuts; reducing emissions and carbon impact is a stated business driver for MEC. Hy-Breasal was a reluctant signatory to the Paris Climate Agreement but a recent change of government has the country reaffirming its commitments. In fact, companies with a combined revenue of over \$11.4 trillion (equivalent to more than half of the US GDP), are now pursuing net zero emissions by the end of the century, according to the United Nations. MEC has stated its intent to be part of that growing set of companies.

Demand for energy continues to increase, and MEC correspondingly requires more workers and more spacious facilities, and additional flights. The existing fleet is aging, as is the set of airstrips. Frequent maintenance is causing massive disruption to the company's performance, and one of

its 2021 business drivers, to “improve shareholder monetary value by 12% over 2020”. MEC has selected an option to replace the current fleet with a newer fleet or upgrade it with a bigger aircraft, doubling its current capacity, better serve the current and expected increase, and reduce the number of flights per destination. This aims at another MEC business driver, “Increase ability to serve customers by 10%”. Nonetheless, bigger aircraft means bigger airstrips – which means bigger runways, larger aircraft ramp/aprons **Exhibit 2**, and upgrades to Ground Support Equipment (GSE) to allow compatibility with the newer aircraft. Each airstrip's main facilities are runway, airfield lighting, weather station, ramp/apron (aircraft parking), GSE, and a passenger terminal.

### **The birth of the MEC Airstrip Program (MAP)**

Knowing that as part of the upgrade projects temporary airstrip shutdowns are inevitable, and that the upgrades will require shut-downs during construction, it is essential for MEC to minimize the airstrip shut-down time. In fact, some Senior Managers and other stakeholders in the company were very much opposed to this Program, due to this “shut-down effect”. The overarching infrastructure Program for MEC consists of three sub-Programs: *the fleet replacement program, the GSE upgrade Program, and finally, the MEC Airstrip Program (MAP)* covering all 16 airstrips. **MEC’s Program Management Office (PMO) has deemed the MEC Airstrip Program as a priority, with each of the 16 airstrips identified as an individual project under the MAP.**

**This case focuses on that Program, which for the remainder of the case we will call the MEC Airstrip Program (MAP).**

The company will sign a contract with the Hy-Bresalian government to operate on its nearest regional airport to each of MEC’s airstrips during the project execution and use buses to travel the extra distance to the company’s operation facilities. Each of the runway projects must follow an extremely tight schedule within the planned shutdown window. Another constraint is

the simultaneous shutdown limitation, limiting the closure of more than one airstrip due to the operational impact and the increased burden for adjacent airstrips.

The MAP program was approved by Senior Management and assigned to a 'rising star' Senior Program Manager, Sheri. At the time of her assignment to MAP, Sheri had 6 years of experience in large projects and programs that cost over US\$50M each and with her success in recent years on a set of smaller airstrip programs in mainland Eufrazia, she is assigned to take over MAP and does so with gusto.

### **The Program Manager has an Idea**

Listening carefully to the 'back-and-forth' at the MAP kick-off meeting, and in particular, the amount of energy, resources, disruption, and time each of these upgrades would take, along with the environmental impact each brings with it, Sheri has an idea. She requests a feasibility study to see if it makes sense to cancel the upgrade of some of the airstrips (highlighted in the Eastern part of the map in Exhibit 1). *Instead of upgrading these airstrips, MEC will sign a long-term contract with a nearby regional airport (RA), and the cost of the contract should offset the cost of the upgrade, plus the operational costs and the future maintenance cost, as well as some intangible benefits. The bottom line of her idea: MEC would cancel or at least postpone half of these airstrip upgrades.*

There are *threats and opportunities* with her idea, as well – some particular to each of these airstrip upgrade cancellations, and some which affect the entire Program. For example, this will require negotiations with local Hy-Breasalian authorities, who, in the past, are notorious for trying to take advantage of large corporations. Luckily, Sheri is politically savvy and knows that a new Government – with a strong focus on environmental responsibility – has come into power recently (See Exhibit 3). Another downside may be reduced work for MEC airport construction and maintenance personnel, resulting in unpopular layoffs. Despite the threats involved, Sheri also sees some opportunities – the energy and resources consumed by half of the runway upgrades will be avoided, and those shutdowns won't be needed.

**NOTE: There are a few threats and opportunities for each option listed here. One of your tasks in your readout on this case will be expand on these and to find other threats and opportunities for which there are many hints throughout this case. Hint: think broadly and deeply about *assumptions* and *stakeholders* as sources of threats and opportunities.**

**Exhibit 1** below illustrates the changes on the country map. Sheri's idea reduces the operating cost and the overhead cost to maintain the airstrip, and in the 8 projects she's considering canceling, the regional airport is always 55 or less miles away. This option should allow an immediate transfer of the operation plus minimizing the environmental impact caused by the demolition and construction work associated with the upgrade project, and overall promises to reduce the MAP schedule by five to seven months.

A comparison of the monetary aspects of the option to upgrade the airstrips or to use the Regional Airports is shown in a spreadsheet screenshot in **Exhibit 4**.

**NOTE: This case also has an accompanying spreadsheet if you want to do *what-if* analysis.**

### **The Idea Faces Pushback**

There is mumbling amongst the project managers and senior managers and other key stakeholders. You can imagine that the project managers of the 8 canceled projects are displeased, but other influential stakeholders are detractors. Why? The decision could result in limitations. For example, MEC would be subject to congestion at the regional airport and may end up needing to use MEC airstrips anyway in urgent situations. Also, aside from the fees that the Hy-Breasalian authorities will charge, there may be expenses needed to meet requirements of landing at the regional airports.

Another consideration: The Hy-Breasal Civil Aviation Authority (HBCAA) enforces airstrip safety and control, and that agency requires all runways identified as an airstrip – those listed in the International Civil Aviation Organization (ICAO) maps - to be staffed (an ongoing expense of

\$0.9M per year) otherwise the owner must demolish the existing airstrip (a one-time expense of \$0.75M per airstrip).

On the other hand, MEC has fairly significant influence in the new Hy-Breasalian government. *Perhaps there is some other way to negotiate or partner with the government to avoid the need to demolish the unused airports.*

### **Many factors and viewpoints for the Program Manager to consider**

One of the key responsibilities of a Program Manager is dealing with a wide variety of stakeholders, many of them high-powered, and heavily opinionated individuals or groups. Sheri also knows that she will also, of course, be doing a lot of communicating – both sending and receiving. Here are a couple of communications she’s just received from key MEC stakeholders:

Lewis, **Senior Director, Transport Operations**, recently emailed the Program Manager, saying *“Sheri, operating our own airstrips means fixable flight-schedule, ZERO delays, and no additional charges for extra flights or unscheduled flights. We need to build our own airstrips!”*

William, a **Corporate VP of MEC’s Safety and HR Organization** left her a brief text on her mobile phone. *“I want to talk to you about the Airstrip program, Sheri – from a safety perspective”*, it says. He follows up 10 minutes later with an email stating, *“The regional airport has additional aviation facilities and equipment helps enhancing the flight experience (take-off and landing) and reducing the number of flights canceled due to bad weather and low visibility. The regional airport is equipped with advanced airfield lighting, weather station, and Instrument Landing System (ILS); a radio navigation system that provides short-range guidance to the aircraft directing it to approach the runway at night or in bad weather. We should take advantage of these important differences”*. Note: (an ILS system can cost nearly \$800,000).

While reading the email, she gets a text from William which says, *“have you seen my email, Sheri?”*.

You have 24 more emails and 38 texts, just in the past few days, with the subject, “Airstrip program feedback” or something to that effect, but for this case, you can stick with these two to get the idea.

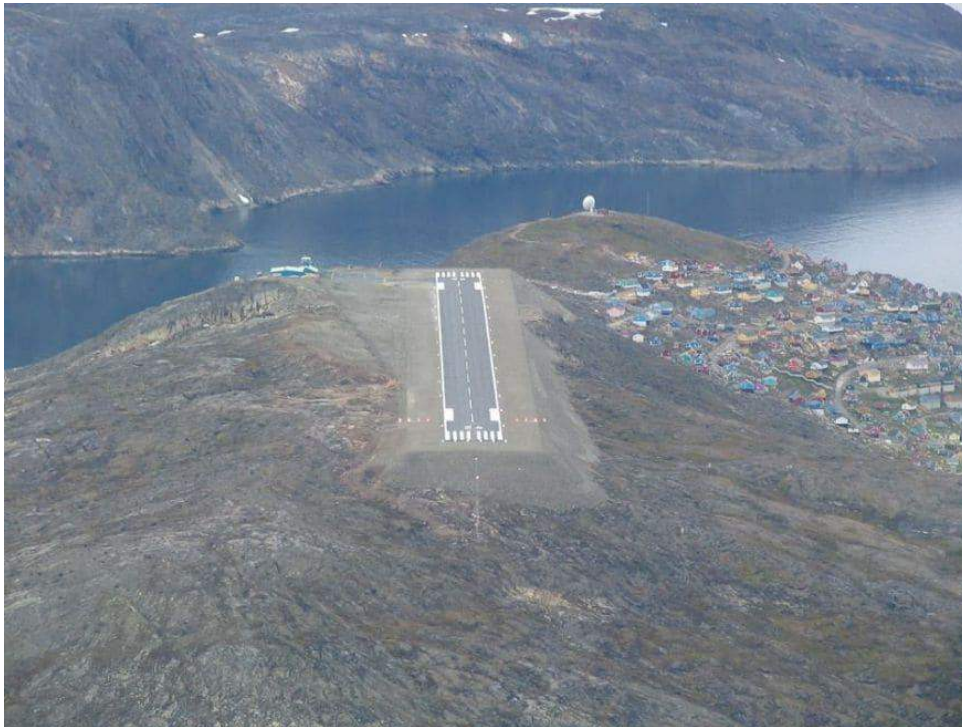
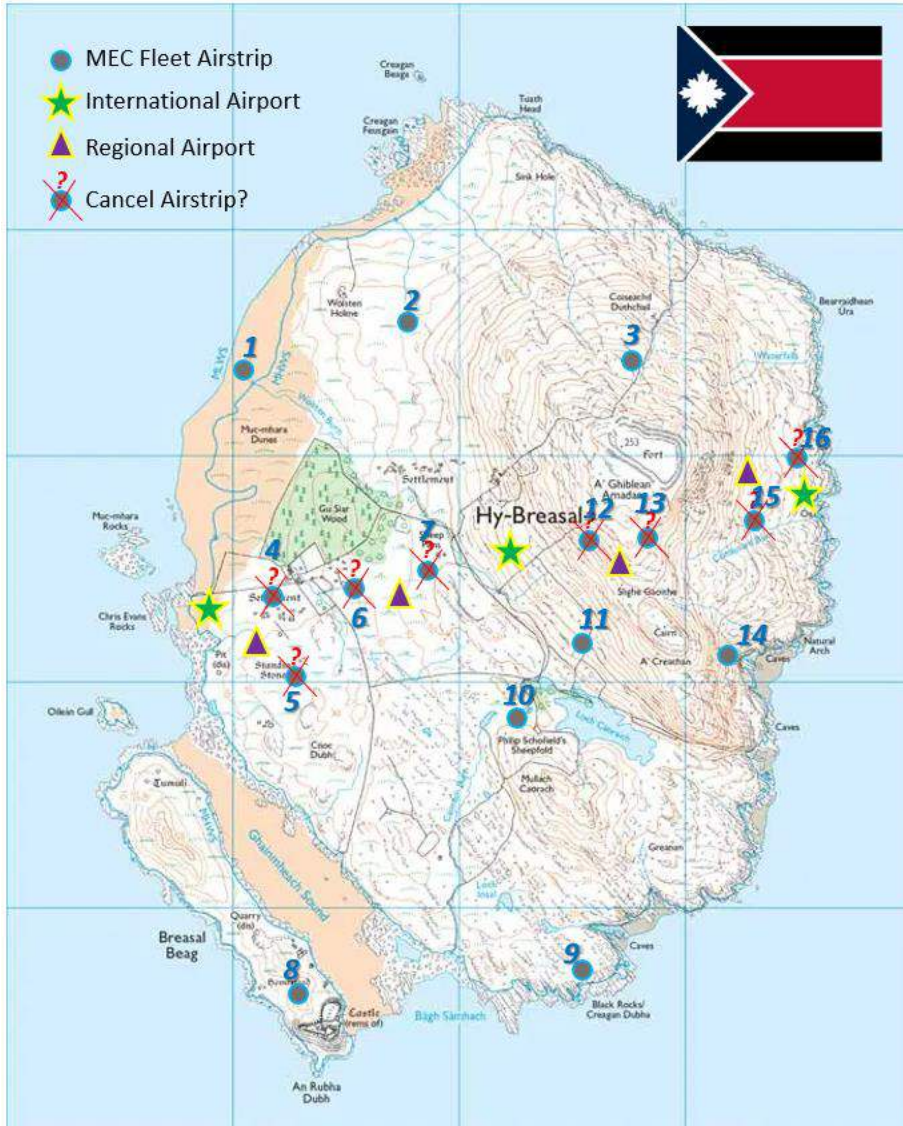
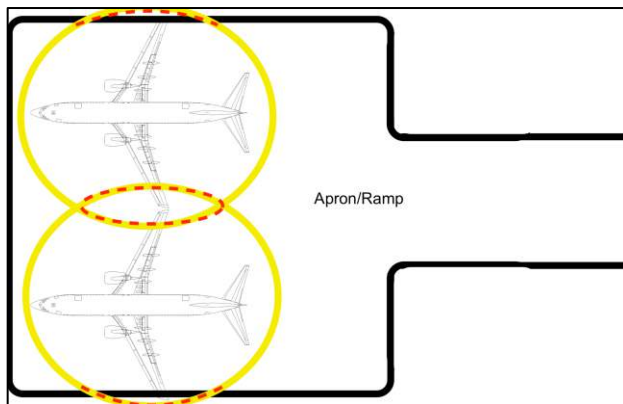


Exhibit 0 – Example Hy-Breasalian Airstrip (Example is Breagan Oubha, #9 on Exhibit 1)



**Exhibit 1:** The fictional country of Hy-Breasal, showing the 16 airstrips of MAP



**Exhibit 2:** Existing Apron/Ramp with new fleet, red dashed line is a violation



# Country of Hy-Breasal



- **Population (2021):** 43,200,000
- **Country Motto:** “Ein stór eyja - eitt stórt hjarta” (“One Large Island With One Large Heart”)
- **Leader:** Prime Minister Hjonae Krangthól, won in landslide in 2020 on a strong environmental platform
- **Flag:** see image above. The symbol in the blue field represents the island and ocean, the red represents the heart, and the black represents the oil which was once the dominant export of the country.
- **National bird:** Hy-Breasalian Bluish-Greenish Robin
- **National flower:** Hy-Breasalian Hyacinth
- **Major Industries:** Energy (multiple sources), eco-tourism, wine, fisheries, minerals
- **Notable facts:** Hy-Breasal was the first country to join the UN Climate Agreement, stating a goal to be carbon-negative by 2035. The country is also known for astounding fossils of well-preserved woolly mammoths, dating from 10,000 years ago and earlier.

Source: Samanburður yfir lágmarks staðreyndir um eyjarikið okkar - A Compendium Of Bare Minimum Facts On Our Island Country (Haerónt Flajðmje, 2021)

## Exhibit 3: Quick Facts on Hy-Breasal

Mammoth Energy Airstrip Runway options (per runway)								
Upgrade								
	Upgrade cost	Annual Operational cost	5+ Years Heavy Maintenance					
Runway & Ramp	\$ 1,250,000	\$ 650,000	\$ 1,500,000					
Runway re-marking	\$ 150,000	-	\$ 150,000					
Airstrip Workforce	-	\$ 1,436,000	-	\$ 128,000.00	40 Employee 2 shifts			
Fire-Protections Workforce	-	\$ 614,400	-	\$ 51,200.00	16 Employee 2 shifts			
Fire-Protections Equipment	\$ 1,200,000	\$ 355,000	\$ 100,000					
Weather Station	\$ 600,000	\$ 270,000	\$ 150,000					
Airfield-Lighting	\$ 1,250,000	\$ 280,000	\$ 100,000					
Passenger Terminal	\$ 500,000	\$ 450,000	-					
Security Equipment	\$ 200,000	\$ 150,000	\$ 40,000					
Ground Support Equipment	\$ 550,000	\$ 350,000	\$ 80,000					
Utilities - Water and electricity	-	\$ 1,350,000	-					
Land lease	-	\$ 3,000,000	-					
<b>Total=</b>	<b>\$ 5,700,000</b>	<b>\$ 8,905,400</b>	<b>\$ 2,120,000</b>	<b>5 Years</b>	<b>10 Years</b>	<b>15 Years</b>	<b>20 Years</b>	
				\$ 50,227,000	\$ 96,874,000	\$ 143,521,000	\$ 190,168,000	
Regional Airport Contract (per airport)								
	One-time costs	Rate cost	Annual cost per fixed schedule (7 flights per day)					
Car parking	-	\$1,000 per car/ month	\$ 1,200,600					
Turnaround	-	\$2,551.32 per aircraft	\$ 6,429,326					
Landing Fees	-	\$725.39 per aircraft	\$ 1,827,983					
Additional Bus transportation	\$ 550,000	\$150 per bus ride	\$ 222,743					
<b>Total=</b>			<b>\$ 9,680,652.00</b>	<b>\$ 48,953,260</b>	<b>\$ 97,356,520</b>	<b>\$ 145,759,780</b>	<b>\$ 194,163,040</b>	
Note: amounts are converted from Hy-Breasalian Kóði (Ø) to US Dollars (\$)				<b>Cost Advantage for Upgrade</b>	\$ (1,273,740)	\$ 482,520	\$ 2,238,780	\$ 3,995,040
				<b>% Cost Advantage for Upgrade</b>	-3%	0%	2%	2%

Exhibit 4: Comparison of costs for the options (Upgrade MEC airstrips or sign contract with Regional Airport). The **upgrade costs** are shown in orange, the **contract costs** in blue. The **cost advantage for the upgrade** is shown in green (thus negative numbers indicate a cost advantage for the regional airport).

Notes for Exhibit 4:

**Upgrade cost** = average total cost of each airstrip upgrade project.

**Annual operation Cost** - This includes the annual preventive maintenance contract, average spare parts/repairs, and other related expenses.

**5+ Heavy maintenance cost** = Runway asphalt usually requires milling and overlay due to cracks and caused by stress and weather. Runway marking requires re-marking after milling and overlay. Sometimes re-marking is required sooner if not visible to pilots. This also includes fire protection chemicals and equipment require replacement, and some require calibration.

### Case Study Discussion Questions:

Assume that Senior Program Manager Sheri has a very strong feeling that her idea is a good one, that she believes in it, and that indeed it does make very good sense.

1. What will help Sheri's effort to push forward her idea to cancel/postpone half of the airstrip projects in her program?
2. What is going to get in the way of implementing her Program? What can she do to get these "roadblocks" out of the way, thinking at the more strategic, holistic program/portfolio level?
3. A few of the stakeholders were mentioned here in the case study background. Who are **other** individual and group stakeholders and where do they sit in terms of attitude, interest, and power?
4. Looking at the map, could Sheri's idea be taken even further? Why may she have decided to stop at 8? Are there any advantages to starting with an even *smaller* number of airstrip cancellations? What approaches can she take to help "sell" her idea, especially to the main detractors identified in the case?
5. Looking at the associated spreadsheet (Exhibit 4), what conclusions can you draw by changing some of the key amounts? You may learn a lot (and please share that in your Report) by 'playing' with the spreadsheet.
6. *Possible extra credit:* consider the italicized sentence at the end of the section, "The Idea Faces Pushback". What ideas do you have here for negotiation and partnership with the government agency?