



Canada Energy  
Regulator

Régie de l'énergie  
du Canada

Canada

# Data Visualization Initiative

FINAL REPORT  
JUNE 2020



# Executive Summary

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The DVI was a three-year initiative using design-driven interactive visualizations to both facilitate transparency and understanding of the Canada Energy Regulator's (CER) data, and be a catalyst for a change in the organization's data culture. This report shows that driving this change by focusing on outcomes instead of using the standard process-centered methodology is more effective and more efficient.

Insights into the leadership actions needed to implement disruptive change constructively are offered. A step-by-step process map of the design and execution of data visualizations projects is detailed in section two. The question of whether creative disruption and innovation can coexist with stability and excellence in service delivery as a business model is answered next.

One key principle emerged from the DVI: the focus must be on outcomes, rather than process and stability. Adopt this principle, and there are good chances of success. Planners should aim to meet their goals through innovation, experimentation and step changes in performance. This requires leaders to support innovation and risk taking – even in risk-averse organizations such as regulators – and discard the traditional model that all teams/people across the organization must fit the same mold and follow the same process.

**LEAD AUTHOR,  
ANNETTE HESTER**  
JUNE, 2020

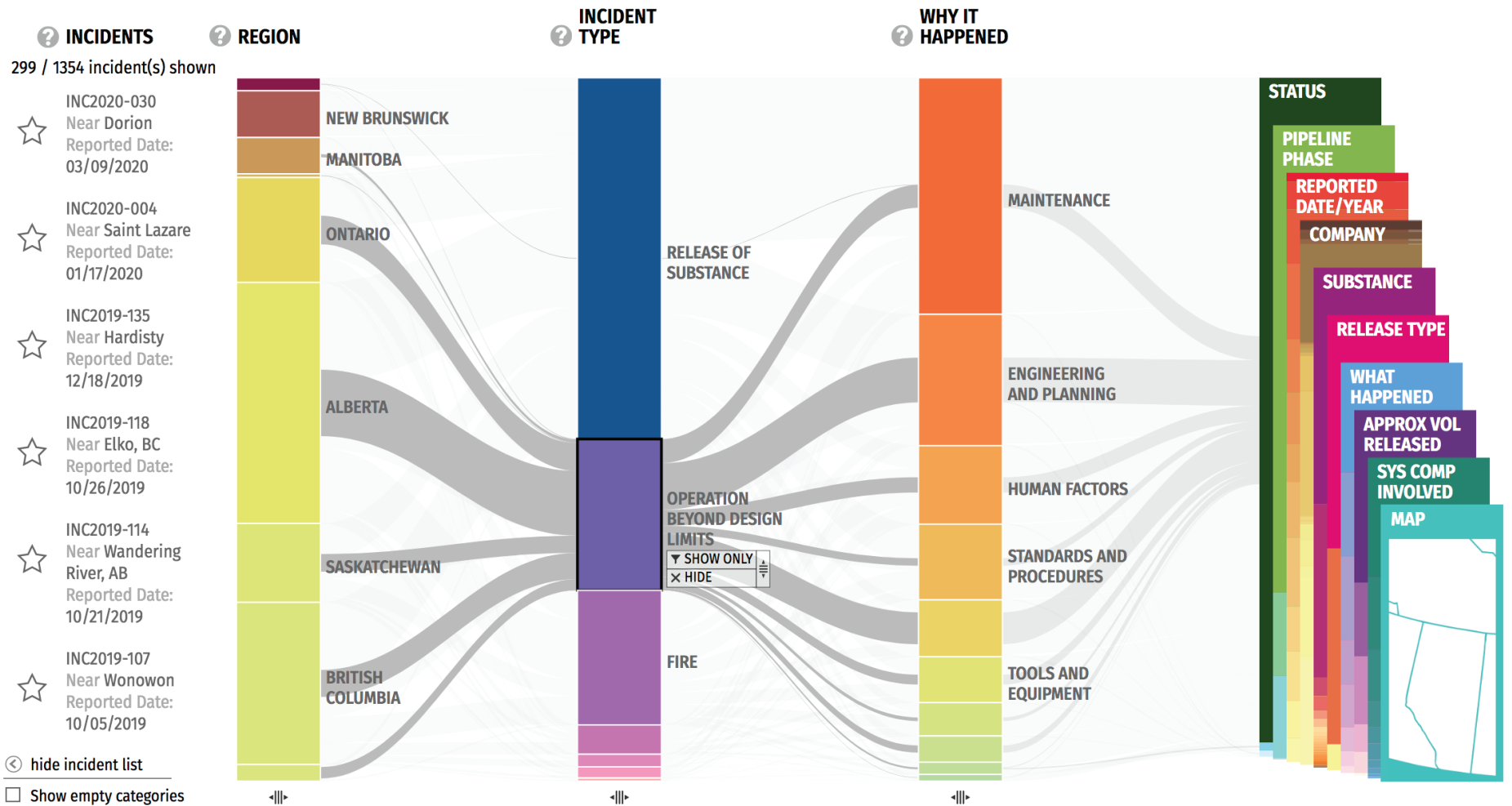
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FIGURE 1

Excerpt from [Incidents at CER-Regulated Pipelines and Facilities<sup>1</sup>](#)



<sup>1</sup><https://www.cer-rec.gc.ca/pipelineincidents>

# Internal Collaborations

Reported to EVP Transparency and Strategic Engagement  
And to the VP Data&IM from July, 2018

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Heather Dodds  
CONSTRUCTION OVERSIGHT |  
FIELD OPERATIONS

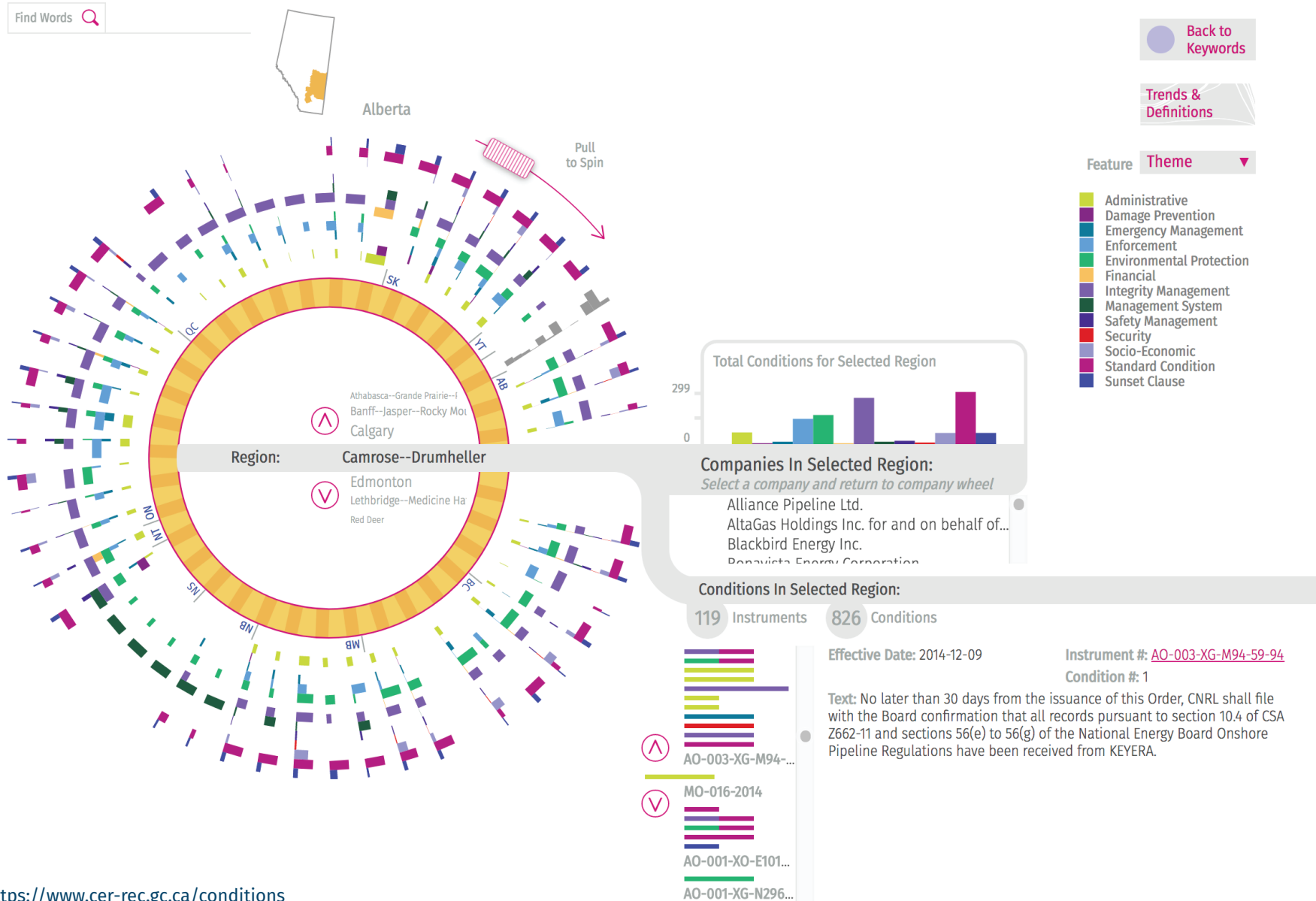
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ENERGY MARKETS |  
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FIGURE 2  
Excerpt from Conditions on CER-Related Projects<sup>2</sup>



<sup>2</sup> <https://www.cer-rec.gc.ca/conditions>

# The Data Visualization Initiative (DVI)

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The DVI was launched in 2016 as a three-year initiative using design-driven interactive visualizations to facilitate transparency and understating of the Canada Energy Regulator's (CER)<sup>3</sup> data.

Innovation was chosen as a key tool to ready the organization for the 21st century -- an age that will be marked by dramatic increases in data flows and digital engagement, and the development of powerful artificial intelligence software. In practical terms, the challenge was to harness data to produce meaningful information to:

- ① Enable evidence-based decision making;
- ② Remove barriers to understanding Canada's energy and pipeline systems;
- ③ Help the organization adopt best practices in data management; and
- ④ Integrate the use of visualizations and user-centric design into regular operations.

First, this report focuses on leadership excellence, which we judge essential for the successful design and implementation of disruptive change. Next, we turn to the "for-the-record/recipe-book" section of our narrative, where we describe the original proposal, its delivery, learnings, and close-out/transition into the everyday of the organization. Last, we share our thoughts on what it will take for this change to be sustainable over the long term. In other words, can creative disruption and innovation coexist with stability and excellence in service delivery as a business model?

We hope this information is useful to current and future public sector leaders as well as any individual interested in organizational structural change in the era of the data economy.

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<sup>3</sup> On June 21, 2019 Parliament passed Bill C-69, which replaces the National Energy Board Act with the Canadian Energy Regulator (CER) Act. The CER Act came into force August 28, 2019.

# The Design and Implementation of Disruptive Change

## THE DATA CONTEXT

The CER oversees how energy moves in Canada. It regulates 73,000 kilometers of pipelines and ensures that their construction, operation, and abandonment are done safely. The focus is on harm prevention by understanding the causes of harm and then acting when needed. In its 60 years of existence the CER has held about 700 hearings. This information, entrusted to the organization by Canadians, spans a large geographic area, subject matter, and timeline.

The data agenda evolved over time. Now it includes automating processes to increase efficiency, the use of data to inform the analytical capacity, and an increase in the scope and depth of engagement with Canadians.

## THE DATA AGENDA IMPLEMENTATION

For the last decade CER leaders have focused on how to move the bar on regulatory excellence. They understood that data and analytics would inform the work, help spot issues before they arose, and allow action to be taken as a preventive measure. While they knew data on any number of subjects, from fish habitat to environment, was abundant, producing analytics from this information was a challenge.

In 2009 they decided to move ahead with the data agenda. As expected, they followed standard bureaucratic best practices: create a new data management unit, appoint staff, give them titles and resources, and task them to deliver data analytics. Unfortunately, following this playbook did not work.

The unit's failure to deliver analytics puzzled management. On paper all the boxes needed for success had been checked. They had senior management buy in; they had the right staff; they knew the power of data; they even had the right titles: regulatory data analysts. What had gone wrong? After a review, learn, adjust, they set a new course of action.

First, they reorganized and increased regulatory excellence training of staff. The assumption was that once more people in the organization were exposed to an understanding of the power of data analytics, collaboration with the new unit would be forthcoming. They also upped the senior leadership sponsorship and the seniority of the positions. And they made the direction clearer. Still, the results were meager, sending management down the review, learn, adjust route one more time.



Another reorganization followed. This time with a new vice-president and the addition of new skills to the data analytics/management team. In short, their response was to do the same thing as before but with more intensity. The pattern reflected an understanding that data was important, yet the notion of what the future would look like when data systems and analytics were part and parcel of everyday business was a lot less clear.

Immediately, disruption led to a different way to think about data and a renewed focus on the core objective of the data transformation.

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With every reorganization the mandate became clearer as did the definition of the problem. The cycle continued until management realized that analytics would not be forthcoming, so they shifted the mandate to performance reporting. The team was asked to report on the existing data that would allow an assessment of how the programs were performing. This shift exposed the underlying weakness behind the lack of analytics and of program performance assessments – data quality. The data analytics team stressed that the data necessary to deliver an accurate

performance report was either not structured, or was inaccessible, or simply did not exist. The organization had a lot of information but no data.

While the leadership was seeking what to do next and the data analytics team was trying to figure out how to meet expectations, the subject matter experts (SMEs) were constantly being told that their data was poor. Here was the challenge. When the data team talked to the SMEs, who knew their datasets inside-out, what the SMEs heard was, “Your baby is ugly.”<sup>4</sup> Not surprisingly there was little cooperation between these teams.

This cycle is indicative of a classic public sector approach to data management and analytics. One identifies the issue, tests organization capacity, allocates resources, is clear on mandate and continuously plans, does, measures, and adjusts. The only potential option that was not tried was to hire management consultants to examine the processes chosen. Even so, it is safe to say that the CER’s extensive experience shows that the standard government approach to changing data culture does not work.

In 2014, a new CEO, Peter Watson, arrived with a change agenda that set the CER on an alternative path to data culture change. First, he focused on a very different engagement

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<sup>4</sup> Ryan Hum, FWD50 2019.

with Canadians. He stressed the need to transform how people work with data, and created new partnerships with indigenous communities. Two years later he launched an unconventional research project on data visualization working with staff and SMEs, but driven by external experts, startups, and universities, all of whom were new to collaboration with the CER. Immediately, disruption led to a different way to think about data and a renewed focus on the core objective of the data transformation.

Four years later the assessment of the transformation is that is an undisputable success, even if now the attention is on the sustainability of the change. What made this attempt successful?

### **DISRUPTION WITHOUT DESTRUCTION**

If, instead of being in government, this sort of disruption had happened in the private sector, the expertise needed would have been brought into the company with a takeover or merger/acquisition. In the public sector, however, the approach had to be adapted. The next best thing was to create an independent unit to work within the system. This team started by focusing on the product, not the process. They partnered with the SMEs to understand their datasets

and produce user-friendly and beautiful visualizations. The fact that to get there the data needed to be organized, structured, and made ready was just the by-product.

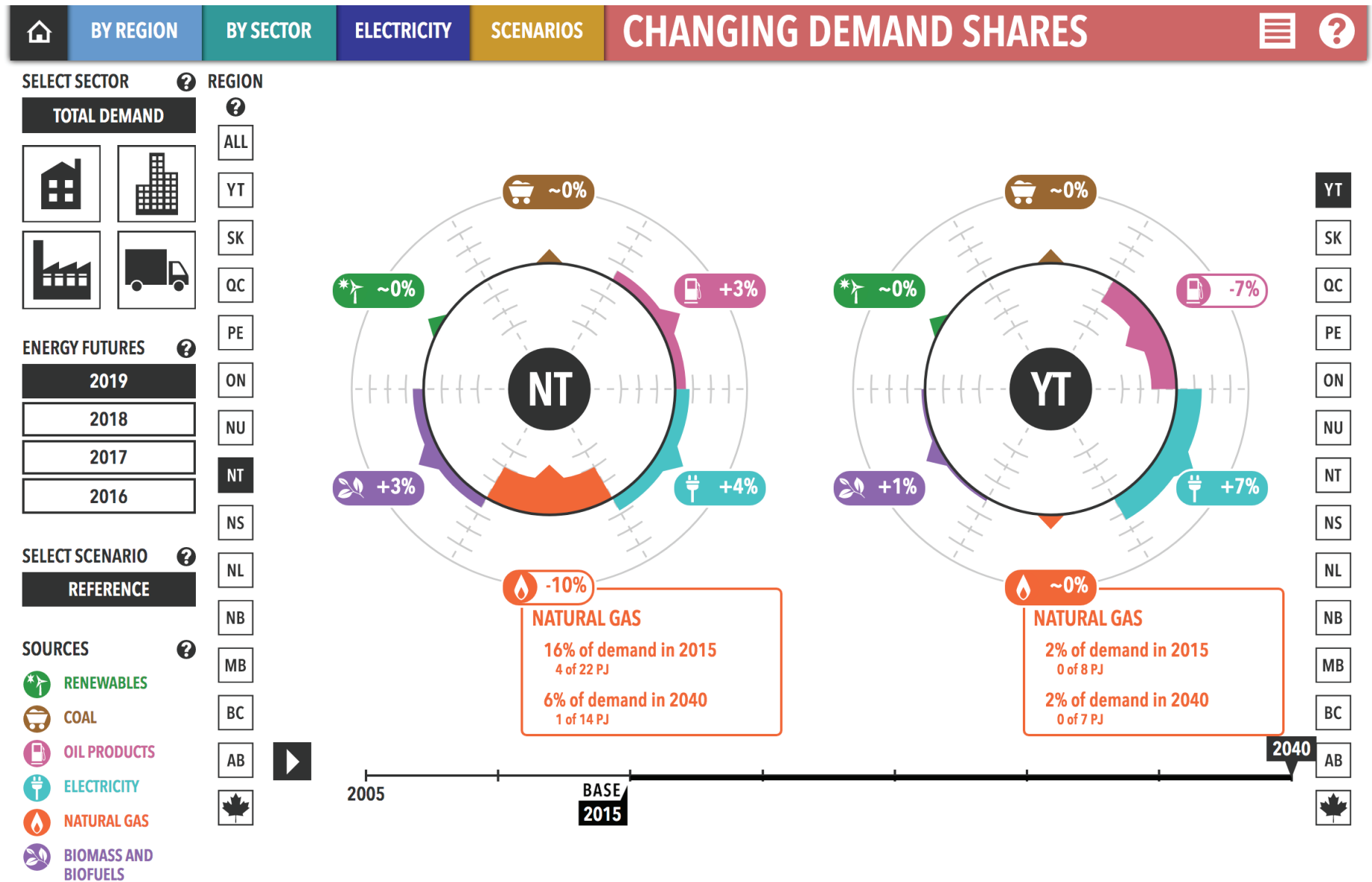
This new team was a catalyst. It made the process go faster. And the more visualizations the team produced, the more others in the organization were inspired to experiment with other data tools. It did not take long before the use of Tableau became a standard. Not all of this was perfect and collaborative. Sometimes units were competing against each other. Sometimes the narrative was: we can do this faster, and we can do this cheaper, why are you spending all this money? The reality is that disruptive culture change is dynamic and messy. The change, however, is priceless.

The success of the visualizations opened doors and attracted new talent from government, the private sector, and universities. The CER created a new business unit focused on products and not processes. Now, this group is 44 people strong, 20 of whom are new to the organization. They include data scientists, engineers, and designers, a behavioural psychologist, and GIS experts. The new hires accepted the positions because they knew the organization was serious about data and was ready to change.

Institutional barriers still exist, as innovations take time to filter through every aspect of the organization. Today, the strategy is to understand how each project changes the way individuals work, collect, store and manipulate data; and how they share it in creative ways. All this while keeping management focused on making decisions based on the collective impact these projects have on the organization.

FIGURE 3

Excerpt from [Exploring Canada's Energy Futures](#)<sup>5</sup>



<sup>5</sup> <https://www.cer-rec.gc.ca/energyfuturesdata>

# The Design and Implementation of Disruptive Change: for the Record/ Recipe book

## SET-UP, PILOT, RECOMMENDATIONS

In 2015, the CER added a data transformation expert to the Chief Operating Officer's team for nine months to analyze the current state and recommend a path forward. This privileged position allowed for an enterprise-wide view of the systems and the data collection, organization, and sharing processes. A comprehensive study on the state of design and use of data visualization in Canada by governments and the private sector was also conducted.

From the beginning, the objective was to drive transformation by doing rather than mandating. As a proof of concept, [the Energy Futures \(EF\) Report](#) was chosen for a pilot visualization. This choice was driven by four factors:

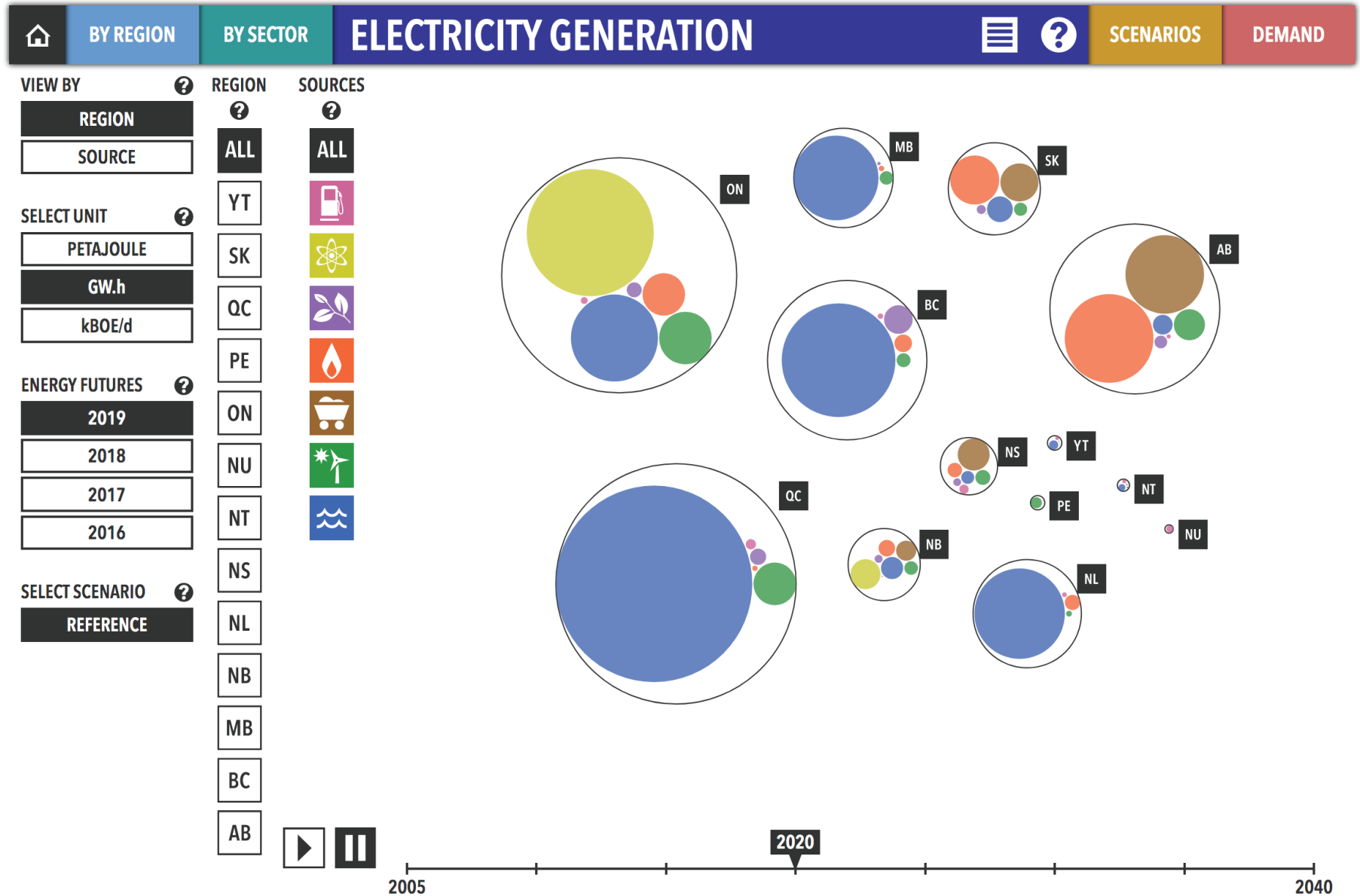
- 1 The EF report, as Canada's official energy production and consumption forecast, is among the CER's most prestigious publications.
- 2 The data was structured and available in an online database;
- 3 It included only quantitative data, which is much easier to visualize than qualitative data; and,
- 4 The EF data experts were ready to restructure data as needed with a fast turnaround.

The data visualization team was small and agile. It included a data visualization design PhD student, two postdocs, and two coders. They were mentored by experts, some of whom had previous experience with a similar project at the InterAmerican Development Bank.

The direction to the team was to produce user-friendly and visually appealing interactive visualizations of Canada's energy production and consumption forecast. They were given three months. The [Exploring Canada's Energy Futures](#) visualization was launch in May 2016 with 4 different "pages" ([a fifth visualization](#) was added in 2017, as were yearly updates upon publication of new Energy Futures reports). In 2016, the pilot received the Canadian Federal Regulators Excellence Award for Innovation.

FIGURE 4

Excerpt from [Exploring Canada's Energy Futures](#)<sup>6</sup>



<sup>6</sup> <https://www.cer-rec.gc.ca/energyfuturesdata>

This experience shaped the recommendations for a transformative data project. Key among them were:

- > Bring a team together combining outside experts and staff. Embed some of these experts in the CER to work side by side with staff and SMEs.
- > Set the accountability with the Executive VP of Transparency and Strategic Engagement who is a direct report of the CEO.
- > Allow a three-year timeline with secured funding and a focus on sustainability.
- > Find a research contract with a Data Visualization Lab at a Canadian university to lead on design, since the field was in its infancy and the most innovative work was being done in research labs. Seek coders that can push the boundaries in this field.
- > Have flexibility to add team members and/or complementary contracts as needed.
- > Make capacity-building and publishing as open source//open data mandatory in all contracts.

# The Data Visualization Initiative

## THE SET-UP

These recommendations were followed, and by the fall of 2016 the CER had awarded three contracts:

- 1 A three-year research contract with the University of Calgary, [Interactions Lab \(iLab\)](#), for Data Visualizations Research and Design through an advance contract notice; and
- 2 Two competitively-sourced contracts, one with startup [VizworX Inc](#), for Data Visualization Computer Coding, and the other with [TheHesterView Inc](#), for a Senior Data Visualization Specialist.

The contracts were renewable to October 2019. The choice of the iLab for the research contract was justified by the ability to secure Dr. Sheelagh Carpendale and Dr. Wesley Willet, recognized world experts in the field of data visualizations, as co-leads for the Initiative. The research contract also included two postdoc and summer students, visiting professors, a project manager, and a lecture series. The other two contractors were also acknowledged experts in their

fields. Other complementary contracts were awarded as needed through the three years including one with [Tétro Design](#) (competitive RFP) for graphic design services; and an agreement with [Ingenium](#) for the creation of educational material using the visualizations. A project manager from the CER was assigned to the team. The annual budget was approximately \$1.4M secured within the existing operating budget of the organization.

Figure 5, on page 17, shows the governance structure. As you can see, the set-up is rather horizontal with the DVI team serving as a link between upper-management and other contractors and the various data experts, drawn from the organization depending on the specific visualization being worked on.

## THE PLAN

An ambitious three-year plan was approved January 2017. Figure 6, on page 18, highlights the strategic objectives, key business lines, and principal milestones and deliverables.





FIGURE 5  
Initial Governance Structure

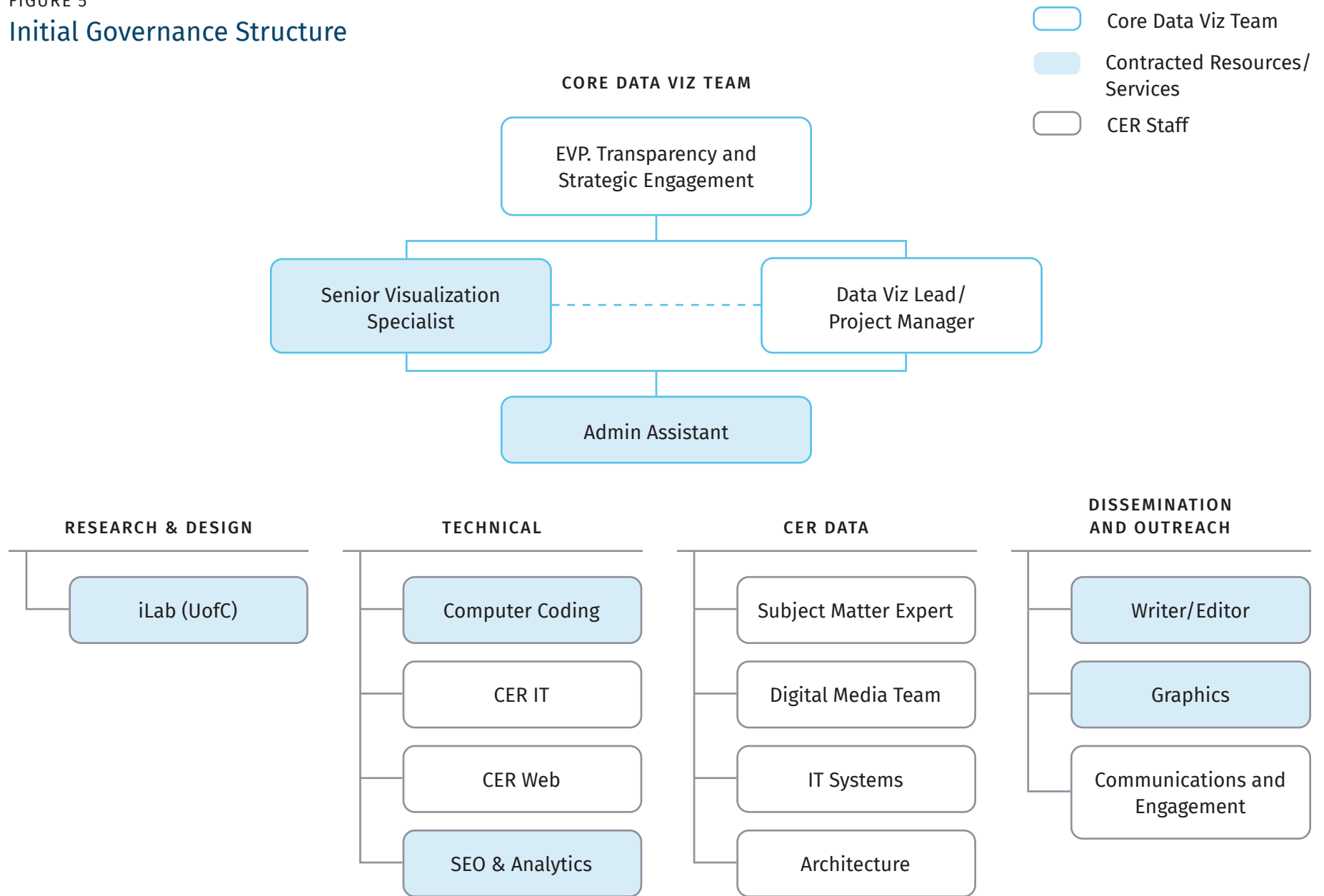


FIGURE 6  
DVI Three-Year Plan<sup>7</sup>

	Fiscal 2017/2018	Fiscal 2018/2019	Fiscal 2019/2020
<b>ADMINISTRATION</b>  <b>Process of engagement: briefs, meetings, conferences, round tables, etc.</b>	Design and implement the initiative including transition to NEB's regular operations	Develop and test methodologies to provide play book for visualizations (and related data management)	Support the Pipeline Information, Energy Systems Information and Stakeholder Engagement Programs' in achieving their performance indicators
<b>COMMUNITY INTEREST</b>  <b>Process of engagement: briefs, meetings, conferences, round tables, etc.</b>	Secure internal and external ambassadors and champions  Engage with the CER BUs through visualization process (data clean-up, design to communication and engagement)	Become a trusted partner to NRCan, Environment, and Stats Canada and a leader in the federal community on all things open data // open knowledge // visualization	Work with a select group of energy experts. This will inform how we bring the viz work to the international energy space
<b>QUALITY DATA AND SYSTEMS</b>  <b>Relevant and trustworthy data, innovative presentation, responsive to input</b>	Development of a data culture throughout the organization.  Work with IT and architecture to promote system development that is open to innovation and data sharing.	Scan existing datasets, develop prioritization criteria and viz timeline workplan.	Innovate on the use of ETLs, analytics, etc.
<b>EVOLVING NARRATIVE</b>  <b>Relevant and trustworthy data, innovative presentation, responsive to input</b>	Once you have the data you need to put it into context. The objectives are to empower storytelling, to reach new audiences in the most creative way.	Partner with leading national and international organizations to create content.	Innovate in presentations, blogs, articles, and content.

<sup>7</sup> A detailed three-year plan is available upon request. Contact [data.donnees@cer-rec.gc.ca](mailto:data.donnees@cer-rec.gc.ca).

## IMPLEMENTATION

The first challenge the DVI team faced was determining a criterion for choosing the datasets to be visualized. In addition to the required Energy Futures maintenance and updates, 11 datasets were nominated by the different business units (BUs).

The aggressive timeline was out of step with the reality of bringing together a design team in an area of high demand (data viz postdoc students are highly sought after), the readiness of the datasets and systems, and the ability to ensure that the complexity and characteristics of the datasets varied so both quantitative and qualitative data were tested. In addition, the team had to ensure coherence with the CER needs to have foundational datasets structured, as well as to respond to other government's demands.

It took Dr. Carpendale and Dr. Willet six months to have the design team fully operational. Meanwhile, the DVI team at the CER researched the readiness of the datasets and consulted with the different BUs and management on priorities.

The Data Visualization projects' timeline (next) demonstrates that the opportunities were distributed across BUs. It also reflects the choice of adding increasingly complex organizational datasets. The first visualization, [Incidents at CER-Regulated Pipelines and Facilities](#), combined qualitative and quantitative data. While the team was developing it, a smaller group refreshed the Exploring Canada's Energy Future webpage with the addition of a fifth visualization. [Imports & Exports of Energy Products to and from Canada](#) came next as the team waited for the data on Pipelines and Above Ground Assets. This dataset did not materialize. Once it does, the design document is done, and coders can take it from there. The last visualization, [Conditions on CER-Regulated Energy Projects](#), was launched in the fall of 2019. It is an exploration tool of structured legal text, a first of its kind. The rationale for leaving the most challenging dataset for last was that by then, the three different teams - design, coding, and CER - would have experience of working together and would have incorporated the knowledge gained from the previous visualizations.

FIGURE 7  
Implementation Timeline

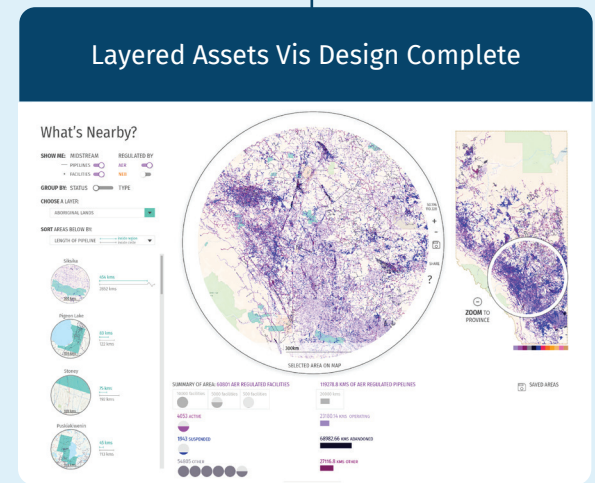
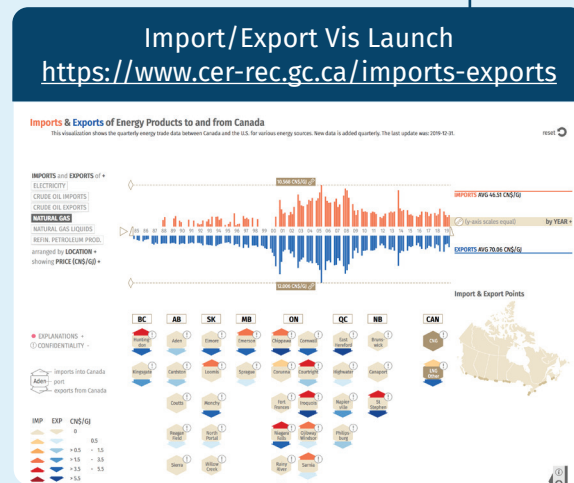
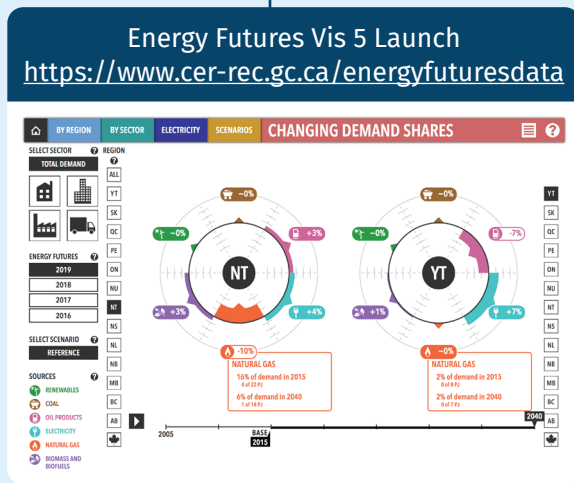
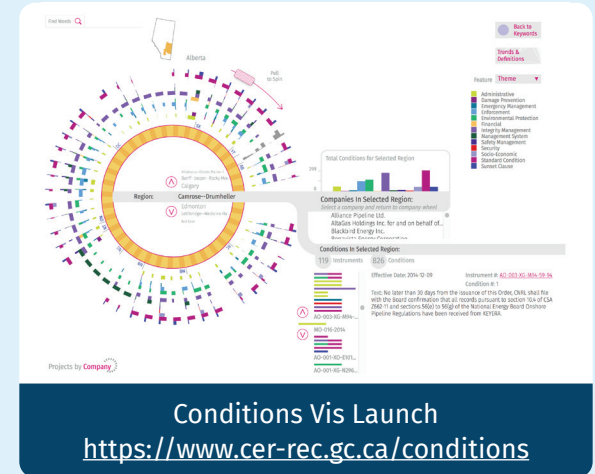
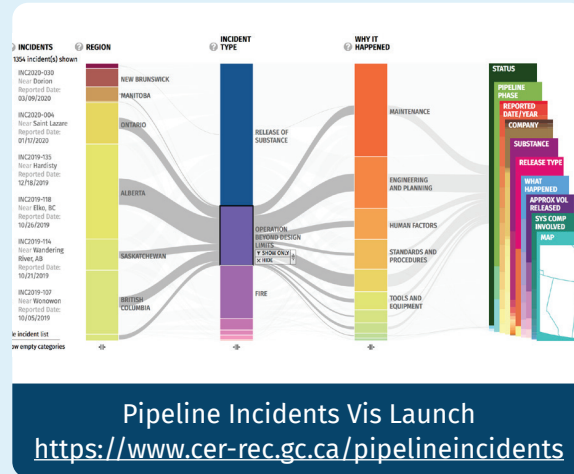
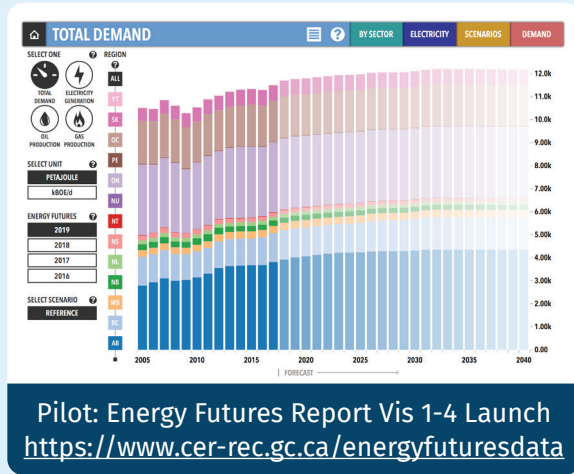
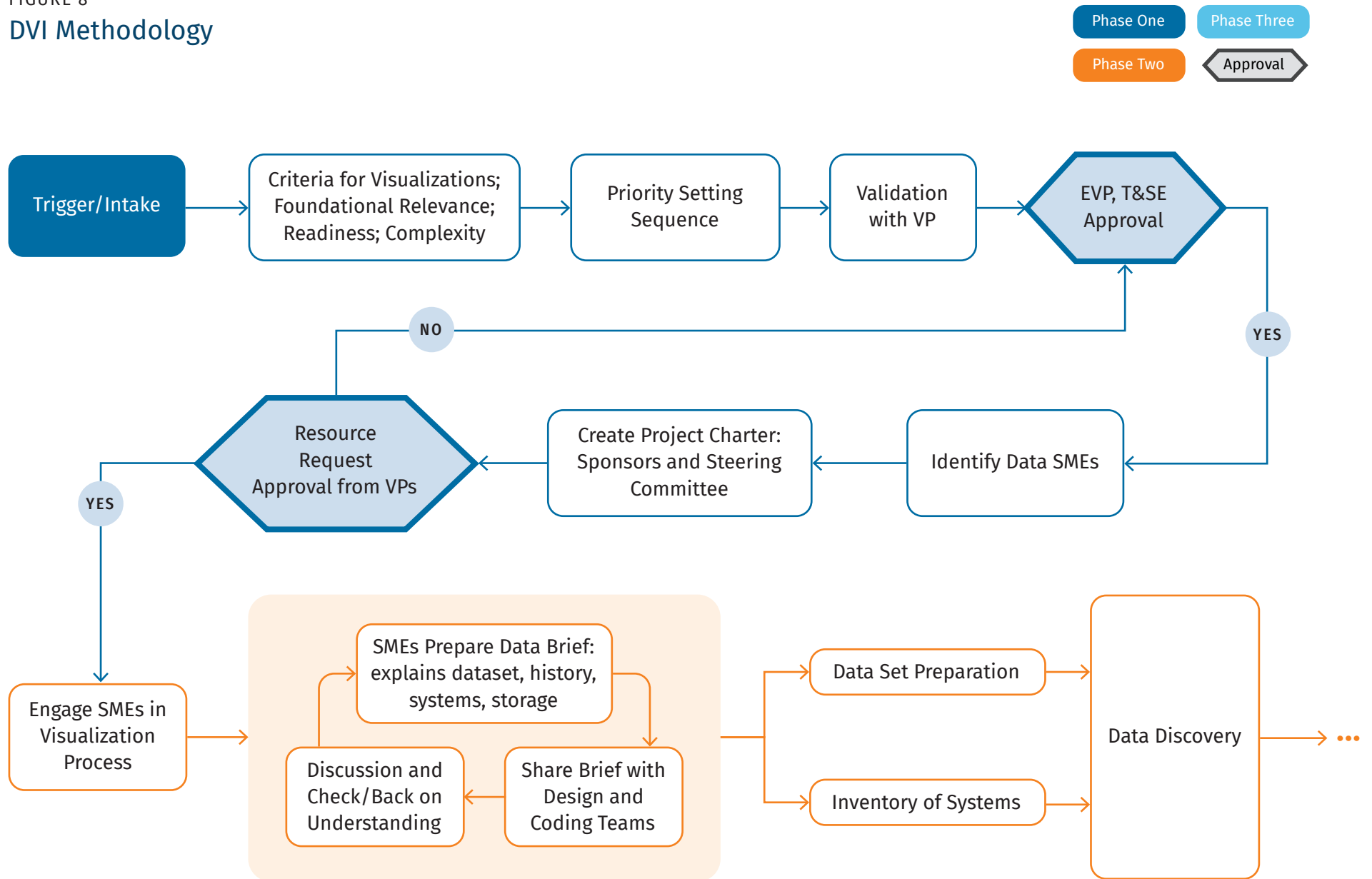
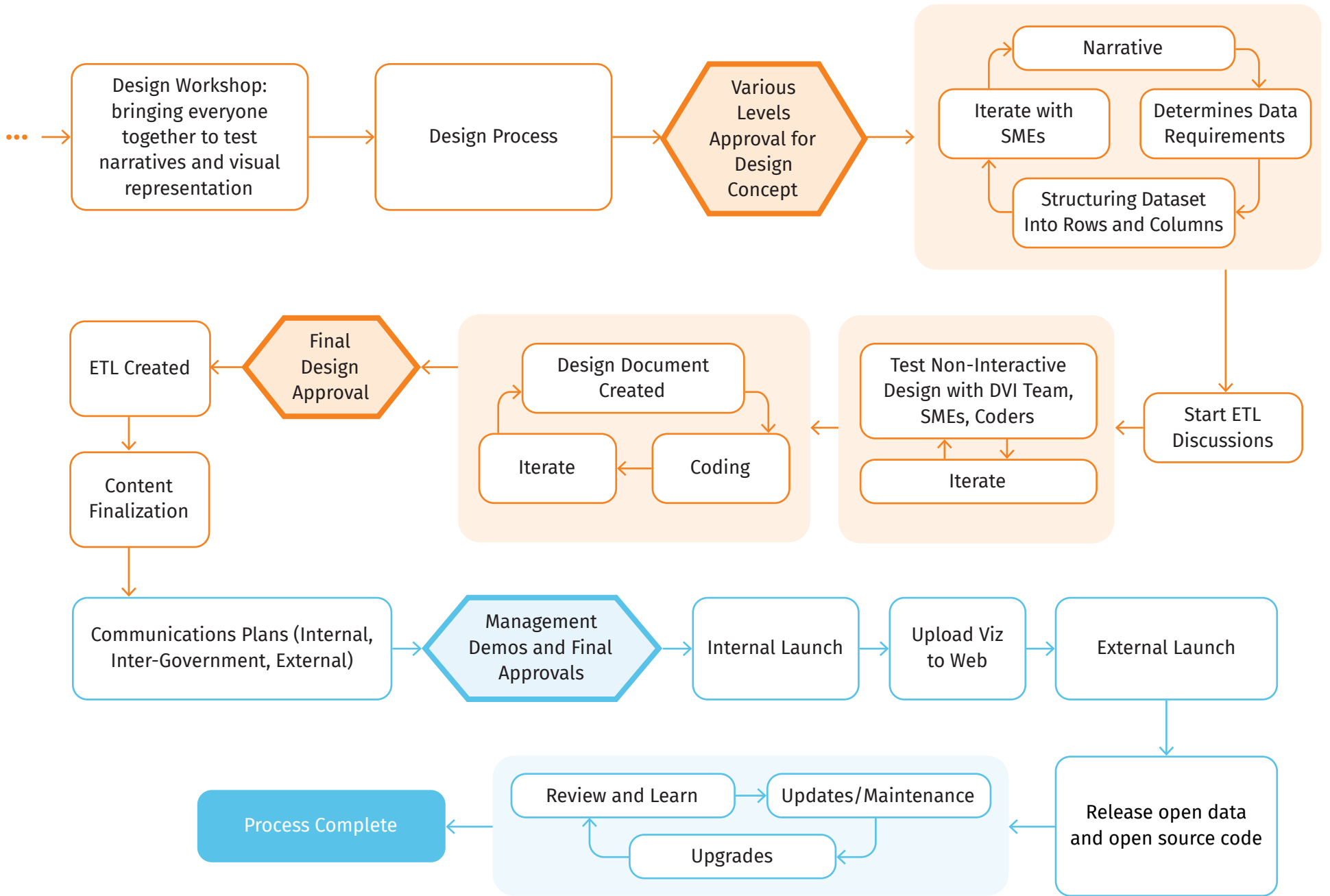


FIGURE 8  
DVI Methodology





The schematic on Figure 8 is the result of our learning.

For instance, we learned that the most effective way to start was to assemble a small internal group with SMEs and the DVI team and work on a dataset brief. The objective was twofold:

- ① Familiarize the SMEs with explaining their data to non-experts.
- ② Expose the designers, coders, and CER non-technical working group members to the dataset. The information included: the purpose of the dataset, the history, ownership, storage system(s), data details, as well as update methods and frequency.

Although now the first step in our methodology is to draft a formal project charter, including a steering committee and a project working group, we did not institute this protocol until after the Import and Export of Canada's Energy visualization. This has become the standard on all our BU's projects. Why? Because it is the recognized language of the organization and allows other BUs to understand what we need from them and the "rules of engagement." We did shorten the traditional CER project charter document to be as concise as possible.

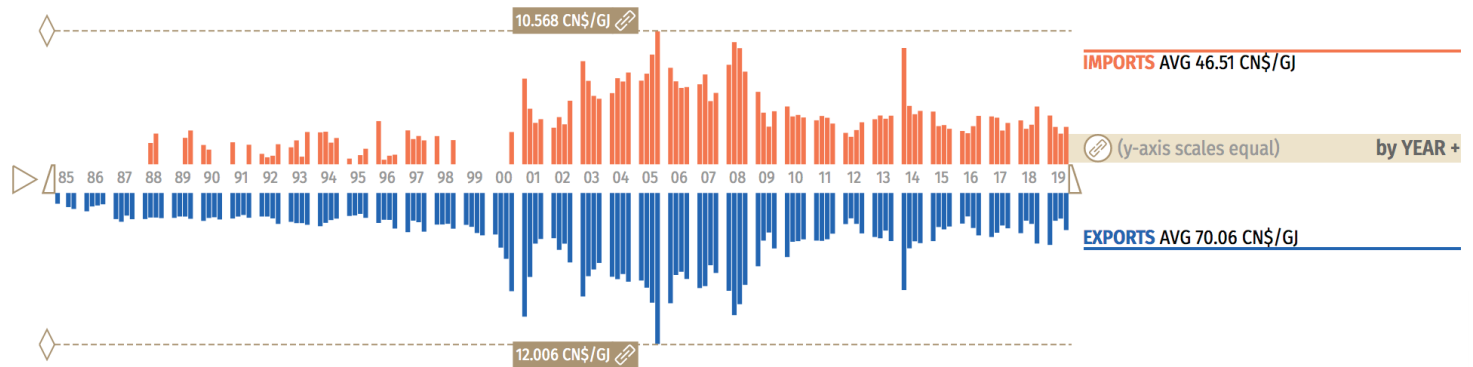
Next, after the design team had analyzed the dataset (a few iterations of back and forth Q&A) we held a design workshop to bring together the entire team for a visualization process "kick-off". The workshop was generally held over two days (blocks of time with breaks in between) to test our understanding of the data; ideas on what stories the data can tell; explore the potential audiences and how they would use this information; look for connections between the data and the stories; and map out potential visual connections.

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**We discovered early on that designing a visualization for the public (whether external or internal) meant something very different than designing one that experts would use day-to-day.**

FIGURE 9  
 Excerpt from Import and Export of Canada's Energy Visualization<sup>8</sup>

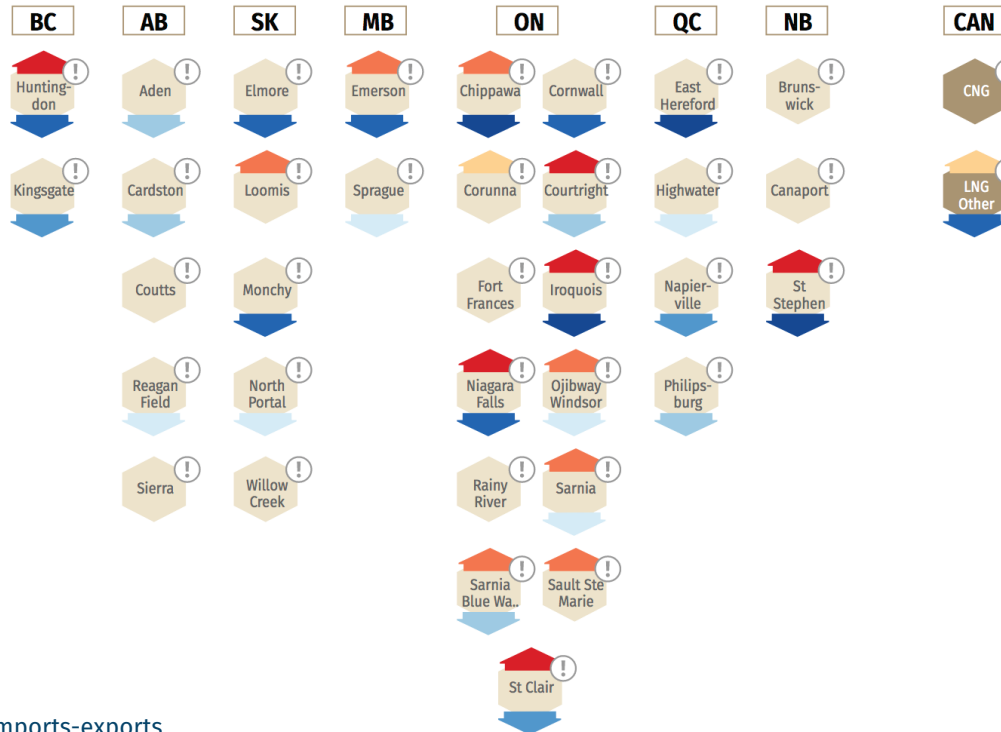
IMPORTS and EXPORTS of +  
 ELECTRICITY  
 CRUDE OIL IMPORTS  
 CRUDE OIL EXPORTS  
 NATURAL GAS  
 NATURAL GAS LIQUIDS  
 REFIN. PETROLEUM PROD.  
 arranged by LOCATION +  
 showing PRICE (CN\$/Gj) +



EXPLANATIONS +  
 CONFIDENTIALITY -



IMP	EXP	CN\$/Gj
Lightest blue arrow	Lightest blue arrow	0
Light blue arrow	Light blue arrow	0.5
Medium blue arrow	Medium blue arrow	> 0.5 - 1.5
Dark blue arrow	Dark blue arrow	> 1.5 - 3.5
Red arrow	Red arrow	> 3.5 - 5.5
Darkest red arrow	Darkest red arrow	> 5.5



Import & Export Points



<sup>8</sup> <https://www.cer-rec.gc.ca/imports-exports>





From there the design team went through their ideation process with occasional contact with the DVI team. Their focus was to test the possibilities and the maximum number of variables they would be able to include so users could still make sense of the data. Note that any data visualization is a sub-set of a dataset. For example, the original Incidents dataset contains over 200 columns while the Incidents visualization has 13 variables -- each with sub-categories that vary from two to ten. Once the designers had a sense of the possibilities, the designers and the working group met with the executive team to discuss these ideas. This discussion served to determine the audience for the visualization, which in turn, determined the scope of the project. We discovered early on that designing a visualization for the public (whether external or internal) meant something very different than designing one that experts would use day-to-day. The discussion included challenges to each option and ideas of timelines necessary to complete each. This information was essential for the executive team to ensure the project was properly scoped, budgeted, etc.

The design team honed their ideas through frequent checks with coders and the DVI team until the CER agreed on the final design. Another innovation was the creation of a document to make the communication between designers and coders effective. This “design document” earned the DVI design team the best paper award for “[Data Changes Everything: Challenges and Opportunities in Data Visualization Design Handoff](#)” at the [IEEE InfoVis 2019](#) Conference.

While the design and coding team were busy at work, the CER DVI team discussed the dataset and systems with the [Extract, Transform, and Load \(ETL\)](#) programming team. An ETL program enables the update of the visualization as often as one wishes, seamlessly. The Incidents visualization was the first one we constructed an ETL for. Each subsequent visualization taught us something different about our systems, and how to connect our ETL to web services that both protect the data and facilitate the visualization’s loading time.

Another feature we learned with time was how to extract analytics on usage that were useful. Like many in government, the CER used pageviews as the go-to metrics for

usage. This measurement is ineffective for an interactive visualization that keeps a static URL while a user is navigating through multiple interactions. That meant we had to reprogram the visualizations to count both pageviews (when you land on the page) and events (for every interaction). We also learned to pay attention to other metrics such as return visitors combined with time on page. This combination showed us whether users were using the visualizations as tools (ie. Returning to the page and spending increasingly more time).

In addition to user testing, which the design team conducted throughout the design process, once we had an operational version loaded in our internal server, we gave the new visualization a full workout with the working group and other internal experts.

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From a financial accounting perspective, we kept track of each visualization's design, coding, and management costs. For the CER, the visualizations are considered digital assets and depreciated accordingly. This financial treatment also implies that maintenance and upgrades are asset stewardship requirements. The detailed

accounting also allowed the DVI team to make choices about what features to include as the project neared its end and budgets were at the limit. This is an acknowledgement that it is impossible to launch any product with everything one would like coded and delivered. At some point a decision as to what can be done for version 1.0 needs to be made.

In addition to user testing, which the design team conducted throughout the design process, once we had an operational version loaded in our internal server, we gave the new visualization a full workout with the working group and other internal experts. We waited until we had a version close to final to prepare the written material (including translations) for inside the visualizations and for the methodology. We treated the latter as the "dataset provenance" record: all about the origin, history, transformation(s), and all other necessary dataset documentation.

With a beta version on hand, we worked on a rollout and communications plan and demo'd the visualization to the various executive levels culminating in an internal open house prior to the public launching. Once that was done, [the source code was published in GitHub](#) and the data on the [Government of Canada OpenData portal](#). From that time onwards, the visualization entered into the update and upgrade cycle of the organization.

Another innovation was the creation of a document to make the communication between designers and coders effective.

This “design document” earned the DVI design team the best paper award for

*Data Changes Everything: Challenges and Opportunities in Data Visualization Design Handoff* at [IEEE InfoVis 2019](#).

# Long Term Sustainability

## Can creative disruption and innovation coexist with stability and excellence in service delivery as a business model?

Since its inception slightly over a year ago, the CER Data&IM business unit has attracted a cadre of experts. Incorporating them and restructuring the teams to reflect both the traditional and the new everyday business of the organization is a work in progress. Most of the new hires are part of the newer data science and agile environments, used to experimentation and continuous interactions before arriving at a final product, that, by design, will continue to have updates. Meanwhile, the standard practice is routed on stability of process and rigour to ensure quality control and predictability. Both old and new are equally necessary; hence, creative tension is always present, and will continue to play out.

While the group adapted well to the new Covid reality of remote working, this new set-up created a new set of challenges for management as individual adaptation was uneven, and at times reflected a variety

of personal circumstances and stresses. Adding staff while still working remotely is a new procedure with unknown difficulties and benefits. At a minimum, the situation requires patience and expert and caring leadership support and mentoring.

The drive to innovate is what moves the BU, especially data science and design teams. In contrast to the DVI focus of external audiences, however, the Data&IM BU is geared to service other BUs. Maintaining a balanced approach and dual perspective between delivering value to the CER and value to external users is necessary to ensure the long term sustainability of a data and evidence-based decision making at the CER. While the desire for new data products by the rest of the organization is undisputable, the ability of this unit to service everyone at the same time is limited. Hence, there is a risk of disenchantment and of a perception of favouritism for projects that receive

assistance. These risks can be mitigated by a robust and transparent project intake process combined with leadership rigour in approving projects with the understanding of the combined impact on the organization, in contrast to approval of single projects.

The Design Team is responsible for the update, upgrade, and maintenance of existing assets as well as designing for all other applications and solutions created by the BU and others. It is a tall order for a small team led by a data visualization expert, a user-experience designer, a project manager, and a digital coordinator, complemented by coders (in house and task-based competitive contract). There is reason to believe that once the design team is fully staffed the unit will be able to handle the requests and continue the CER's leadership in design-based products in the government of Canada. Long term, however, the organization should seriously consider adding coders to the staff. In addition to being cost effective, in-house coders having depth and breadth of expertise in all areas

related to the delivery of digital service will ensure the CER has the flexibility necessary to adopt new technologies seamlessly, and retain the institutional memory necessary to excel in an environment that is constantly changing.

Staying at the forefront of the digital revolution in the government of Canada will also require that technical units understand that it is their responsibility to produce and maintain data that both allow them to do their business (the large datasets) as well as create, upgrade, and maintain sub-sets of their data that are needed by others in the organization and the public to make sense of this information. Engagement is everyone's business.



This report celebrates the end of the DVI. The criteria for success were that after three years of experimentation, the CER would be treating data differently and these changes would be on a sustainable path. Both of those goals were achieved. The organization now is at the forefront of innovation in data, is a government of Canada leader on the use of interactive data visualizations, and the road ahead includes a data transformation focus area to expand this new methodology and insights to the entire organization.

Still, the lesson that led to the DVI should not be forgotten: Leaders need to continually raise the bar on expectations and focus on outcomes instead of process. The objective should not be stability. The goals are innovation, experimentation and step changes in performance. This requires leaders to support innovation and risk taking – even in risk averse organizations such as regulators – and discard the traditional model that all teams/people across the organization must fit the same mold and follow the same process. Otherwise, the creative momentum is sure to die out.

Innovation and risk-taking in this context does not conflict with the stable regulatory mandate. Rather, the data disruption

and experimentation leads to a different understanding of the information and opens the doors to new insights, allowing regulators to focus on stability in decisions combined with proper and measured changes in regulatory policy.

It is our hope that sharing this experience openly will allow us to amplify our learnings to others in government, multilaterals, NGOs, and beyond.

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