EXPLORING THE FUTURE OF HOSTING CAPACITY ANALYSIS AT XCEL ENERGY

2020 HCA Workshop 5

Use Case 1 – HCA remaining an early indicator for interconnection

September 10, 2020

AGENDA

1. Recap Workshop 4
2. Explore the Hosting Capacity Analysis (HCA) remaining an early indicator for interconnection
3. Understand the information you need to decide whether to request a pre-application screen or otherwise initiate the MN DIP process

Workshop Goals

- Get your feedback, input, and perspective
- Work toward increasing the efficiency and value of the HCA tools
- Further shape the HCA roadmap for integration of the HCA with the statewide standard Minnesota DER Interconnection Process (MN DIP)
- Feedback today informs future workshops and our analysis

Workshop 4 Recap

- *Purpose* – provide background and set the stage for discussing potential future Use Cases for Xcel Energy's HCA
- Provided open discussion between stakeholders and Xcel Energy to highlight gaps in both the HCA and MN DIP
  - Issues with interconnection timelines
  - HCA data accuracy and update frequency
- Collected stakeholder feedback for future discussion and to include in our analysis of the costs and benefits of the ordered Use Cases

HCA Workshop Series / MN DIP Process

HCA Workshop Series

Engage with stakeholders to refine the Hosting Capacity Analysis and in evaluating the costs and benefits associated with specific future potential Use Cases:

1) Remain an early indicator for interconnection
2) Integrate with MN DIP – Pre-Application Data Report
3) Integrate with MN DIP – Replace Initial or Supplemental Screens
4) Integrate with MN DIP – Automate Interconnection Process

Lead by Xcel Energy; guided by Commission Order

Distributed Generation Working Group

Reviews implementation and technical issues that arise with implementation of the MN DIP, Minnesota DER Interconnection Agreement (MN DIA), TIIR, or emerging DER technology.

Current efforts:

-MN DIP Challenges
-Serial Review of projects
-Cluster System Impact Studies
-Reserving Capacity for smaller systems
-Interconnection Timelines
-Advanced “Phase 2” System Impact Studies

As directed by the Commission’s Executive Secretary

Interconnection Improvements Underway

We are committed to making improvements to the Xcel Energy interconnection process

	Short-Term Action	Long-Term Action	Expected Improvement Timeframe
Completeness Reviews	-Trained additional resources to help when volume is high -Bringing in a consultant	-Continuing to make it easier and provide training to reduce initial rejection of applications	-Within a month
Initial and Supplemental Review Screens	-Existing resources have more bandwidth due to help on completeness reviews -Pursuing additional resource	-Working to automate data entry	-One to two months with additional efficiencies realized by year end
System Impact Studies	-Tighter tracking with more refined internal targets -Area Engineering taking larger role -Leveraging additional consultant -Formalized steps for high penetration feeders with minimal capacity	-Working towards a more proactive modeling approach. -Data validation effort -Efficient Transmission Impact study	-Realizing improvements today -Will continue to tackle high penetration and other unique situations as quickly as possibly -Some issues will take longer to fully resolve

Ordered Use Case Analyses – *Costs and Benefits*

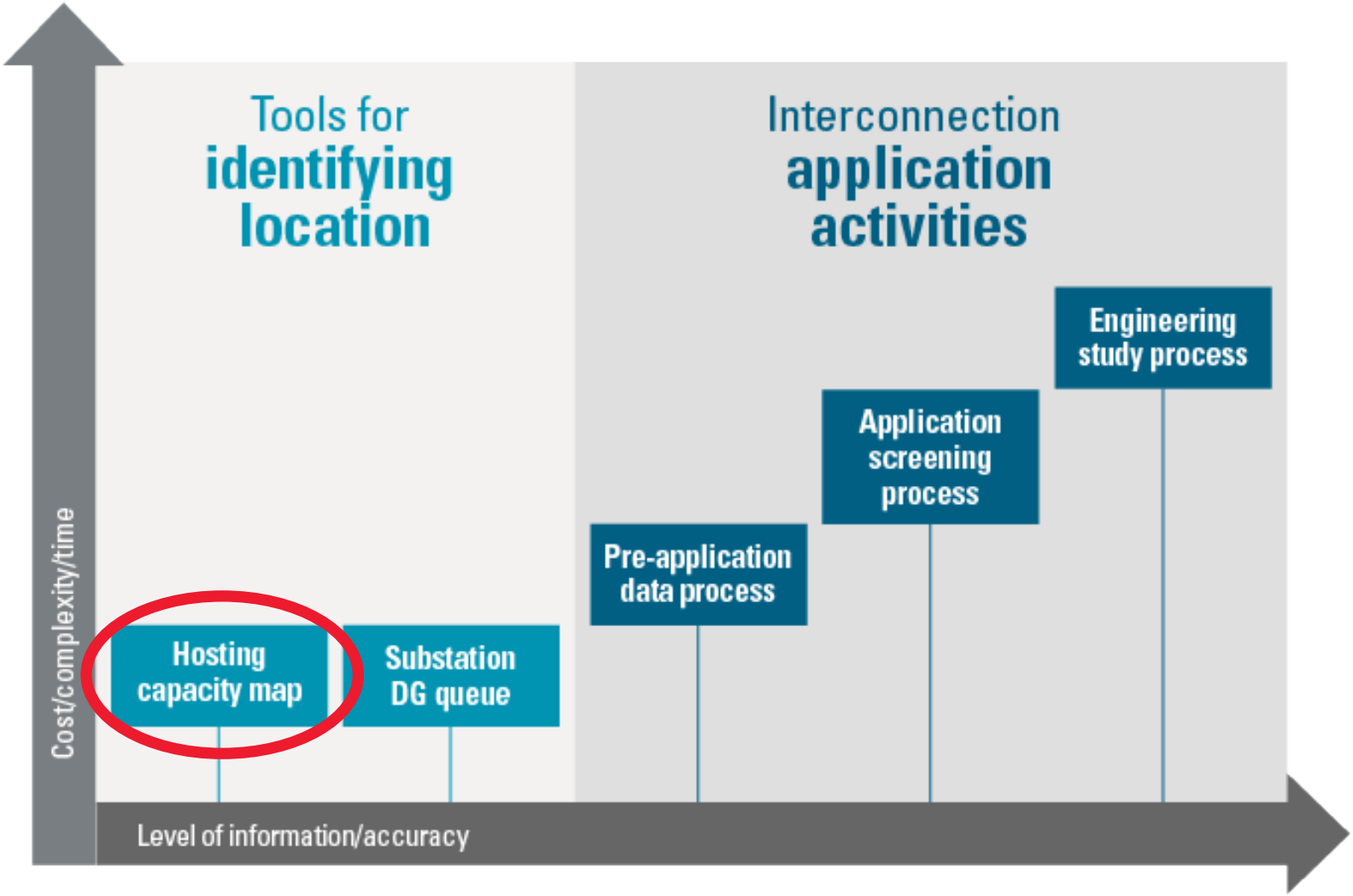
1) **Remain an early indicator for interconnection**
   - **More frequent updates** (*monthly, quarterly, semi-annual*)
   - **Targeted updates**
2) **Integrate with MN DIP – *Pre-Application Data Report***
3) **Integrate with MN DIP – *Replace Initial or Supplemental Screens***
4) **Integrate with MN DIP – *Automate Interconnection Process***

Examples of Changes to HCA Over Time

- **2015 - 2016**
  - Xcel Energy began working with EPRI in 2015 to begin the process of acquiring DRIVE as a tool for HCA - filing its first HCA in 2016
- **2017**
  - Changed methodology to Centralized (interconnection Use Case)
  - Developed and implemented a Heat Map to accompany tabular report
- **2018**
  - Added reverse power flow as an analysis criteria
- **2019**
  - Performed HCA using actual daytime minimum loading and power factor information, where available
  - Added unintentional islanding as an analysis criteria
  - Pop-up functionality and information added to Heat Map

Note: Not an exhaustive list of changes and improvements over time. Does not represent changes EPRI made during this period to the tool or underlying analysis and functionalities.

Current State – *HCA in relation to MN DIP*



INTERACTIVE DISCUSSION AND POLLING

HCA as Early Indicator – *Measure of Success*

- **Detailed enough to provide** developers with **a reliable estimate** of the available level of hosting capacity at the feeder and sub-feeder levels.*
- **Sufficient information to provide** developers with **a starting point for interconnection applications**.

* At the time of submittal of the report, to the extent practicable.

Use Case 1 – Questions Preview

Measure of success: Detailed enough… sufficient information… reliable estimate…starting point

What, why, how…

What information do you need? What information would be ideal?

Why is that desirable/essential? How would you use that information?

What value would that provide to your customers? Your business?

Describe your ideal hosting capacity analysis tool.

What change/improvement should we prioritize to deliver first?

What information or functionality would you be willing to pay for?

POLL – SERIES 1

1) How often do you use the current iteration of the HCA map or tabular report?

a. Daily
b. Weekly
c. Monthly
d. Rarely use map or tabular report

2) Do you feel that the current iteration of the HCA is detailed enough to provide reliable estimates of hosting capacity at the feeder and sub-feeder level?

a. Yes
b. No
c. N/A – I haven't used it enough to know

3) Do you feel that the current iteration of the HCA provides sufficient information for you to make preliminary decisions regarding applying for interconnection?

a. Yes
b. No
c. N/A – I haven't used it enough to know

HCA as Early Indicator

– *Detailed enough to provide developers with a reliable estimate. Sufficient information to provide a starting point.*

- **What is a reliable estimate to you?**
- **What additional information would provide you sufficient detail to have confidence in the HCA results? What is essential? Ideal? Why?**
  - **Hosting Capacity value and limiting criteria**
  - **Feeder/Transformer (TR) daytime minimum load**
  - **Queued/Existing DG on Feeder/TR**
  - Feeder/TR peak load
  - Feeder/TR capacity
  - Feeder route
  - Distance to sub
  - Feeder conductors
  - Other
- **If we could add that information, what are the associated benefits?**
- **Are you willing to pay?**

POLL QUESTION 2

What frequency of updates would be sufficient to (1) provide a reliable estimate of hosting capacity and feeder information, as well as (2) provide a starting point for interconnection applications?

a. Yearly
b. Semi-annually
c. Quarterly
d. Monthly
e. Weekly
f. Daily

HCA as Early Indicator – *Frequency of Updates*

Poll Results and Discussion

- **Why is that frequency important?**

- **What impact would this have on your business?**

HCA as Early Indicator – *Targeted or Partial Updates*

Discussion

- **Is anything short of a full update helpful?**
- **What information would be most important or helpful to update? Why?**
- **What impact would this have on your business?**

POLL QUESTION 3

If the HCA could give you additional information that is not currently available, would you be willing to pay for this added usability, and if so in what ways? (select all that apply)

a. No, I would not be willing to pay for additional information
b. Pay per project/location view
c. Pay per kW of desired project
d. Subscription
e. Bundled or volume pricing
f. Other

HCA as Early Indicator – *Willingness to Pay for Additional Functionality*

Poll Results and Discussion

- **If the HCA could give you the information you need to increase your confidence in initiating the interconnection process for a specific project – what would you be willing to pay?**
  - **Per Project/View?**
  - **Per kW?**
  - **Subscription? Unlimited? Tiered – for example, up to a certain number of uses?**
  - **Other bundled or volume pricing?**
- **What information would be most important or helpful to update? Why?**
- **What impact would this have on your business?**

HCA Roadmap

Discussion – Ideal World…

- **Out of everything we discussed today that would make the HCA a valuable initial indicator for you –**
  - **what change would you want us to make first?**

HCA Roadmap

Discussion – Ideal World…

- **Describe your ideal hosting capacity availability tool that would be:**
  - **a reliable indicator and**
  - **provide sufficient information**

for you to initiate the interconnection process somewhere on our system.

What's Next – September 15, 2020

1) Remain an early indicator for interconnection
   - More frequent updates (*monthly, quarterly, semi-annual*)
   - Targeted updates

2) **Integrate with MN DIP – *Pre-Application Data Report***

3) **Integrate with MN DIP – *Replace Initial or Supplemental Screens***

4) **Integrate with MN DIP – *Automate Interconnection Process***

THANK YOU FOR YOUR FEEDBACK

Also- if feedback or questions before September 15th session:

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