BCG
Digital
Ventures

Nucleus

An LC&I focused customer portal that putting
the Customer at the Center

FRICTIONS & INSIGHT

BUSINESS SOLUTION
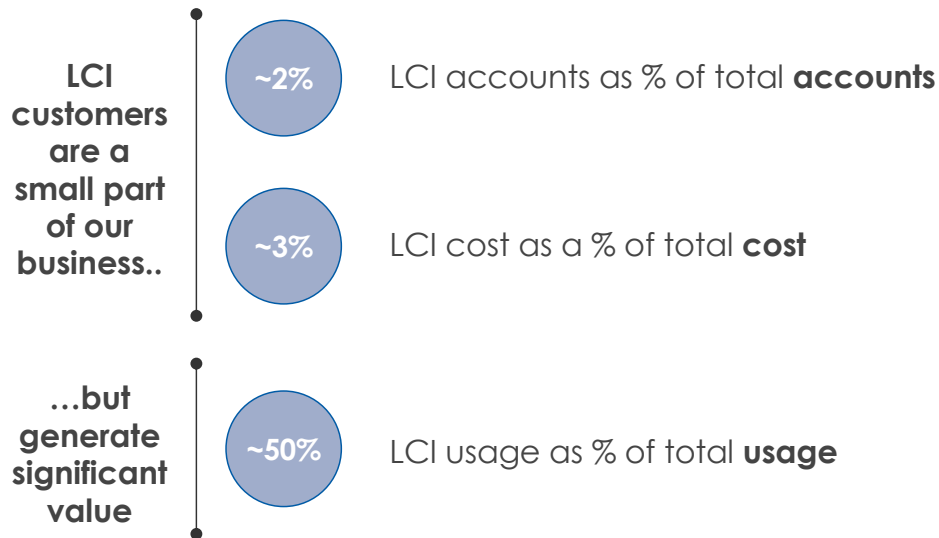
ARCHITECTURE & TECHNICAL SOLUTION

BUILD/ACQUIRE PLAN

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Today LC&I customers make up ~50% of load, but are at risk due to a number of industry trends

LCI customers are a small part of our business..

~2% — LCI accounts as % of total **accounts**

~3% — LCI cost as a % of total **cost**

…but generate significant value

~50% — LCI usage as % of total **usage**

Number of trends increase risk of grid demand loss

Increasing gas & electricity prices

Reducing cost of DER

Greater importance of power reliability & quality

Increasing energy sophistication

Increasing focus on sustainability

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Note: Data based on CSS Gas and Electric Accounts

But our LC&I customers have specific satisfaction challenges

New connections are **unreliable**, not transparent, and costly/slow

Power quality and reliability sometimes **sub-par** for most **sophisticated customers**

Manual & difficult process to **analyze usage**, especially across multiple accounts

Significant effort & confusion created by multiple (and paper), error-prone bills

Fragmented communication with lack of personalization & proactivity

We categorize into 5 key frictions

No customization

Too many accounts to manage

Lack of effective and efficient support

Confusing bills

Poor usage analytics

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LC&I customers need significant support to pay bills and manage usage.

Accounting

Responsibilities: Attributing expenditures and resolving to issues when they arise.

Needs: Accuracy, access to data, and fast support

Tools: ADP SAP Cass

Facilities

Responsibilities: Monitoring usage and identifying efficiency opportunities

Needs: Reliable energy. expertise and fast support

Tools: CRESTRON Schneider Electric ORACLE OPOWER

Sustainability

Finance

ESCOs and Energy Consultants

Transaction Support

Responsibilities: Resolving complaints from non-managed accounts

Needs: Access to info, efficient resolution tools

Tools: GridForce, CSS, Storms

Acct. Mgr./EE Sales

Responsibilities: Resolving complaints and finding efficiency opportunities

Needs: 360 customer view, efficient support tools

Tools: GridForce, CSS, Storms

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○ **Customer** ○ **National Grid**

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We are investing in satisfaction _but_ focused on residential customers

ONGOING INITIATIVES WITH RESIDENTIAL FOCUS

New web **self-service portal** with single sign-on

Preference management for communications

Personalized and targeted offers

Bill redesign

While LC&I customers may benefit from these experiential improvements, our existing efforts are not focused on addressing LC&I needs

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The LC&I customer experience reimagined

Account grouping

Digital bill guidance
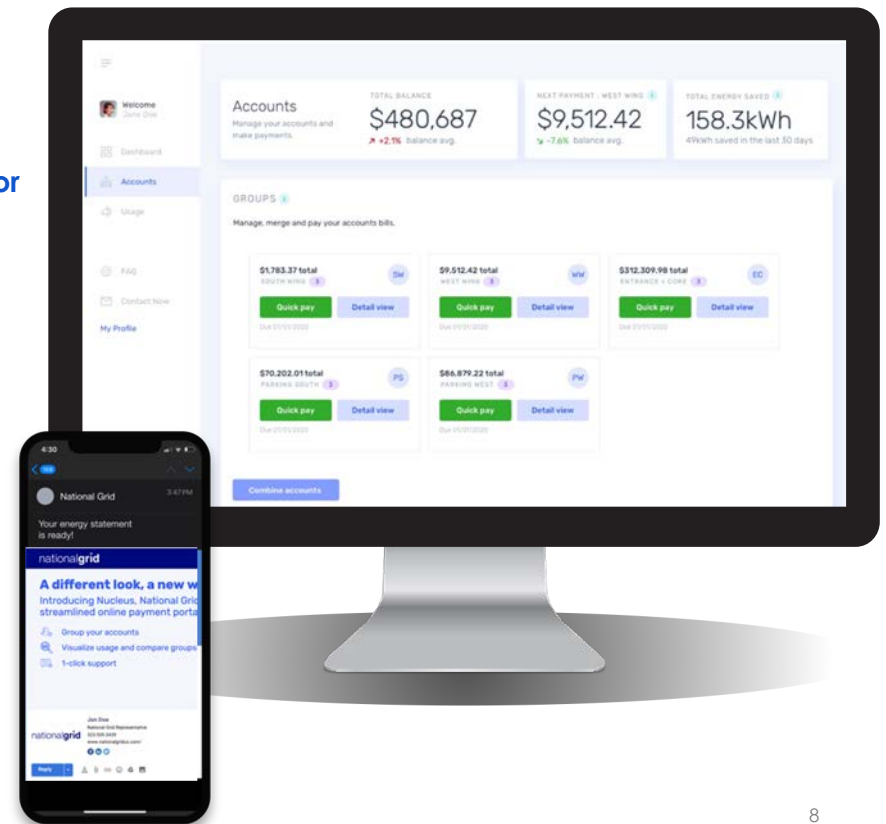
Powerful analytics for your usage

1-click customer assistance

DIY Payment Allocation

Screen mirroring smart support

Nucleus empowers customers with data & control of their accounts

Account grouping
Accounts grouped in the way you think about your business

Digital bill guidance
Navigate your bill with clear explanations of charges and a human centric design

Powerful analytics for your usage
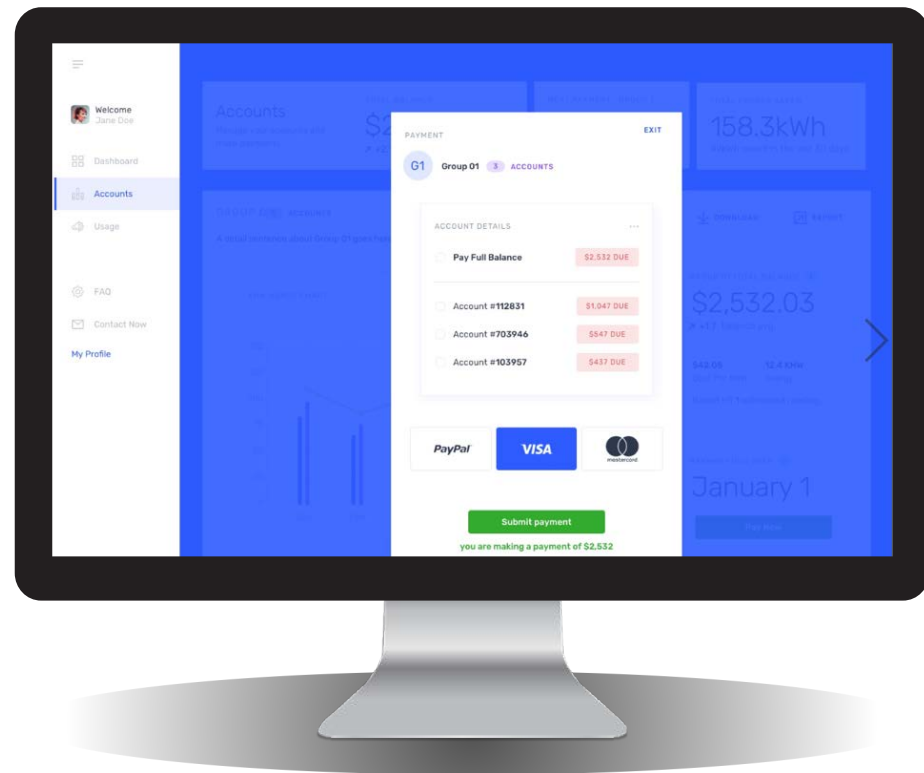Visualize & export usage charts, enabling you to make the best decisions to do more with less

1-click customer assistance
Simple chat functionality that provides a direct line to customer support

DIY Payment Allocation
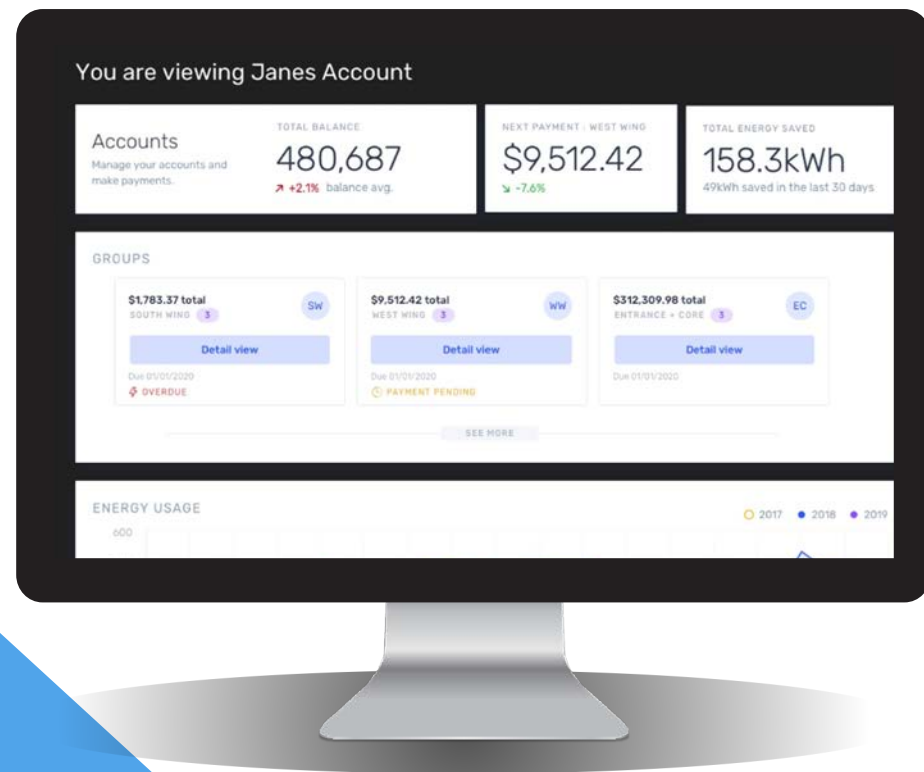Apply payments deliberately to specific accounts and track the status of your payment

Connecting customers with the teams who support them

Screen mirroring smart support

Enabling internal teams to better serve customers through a personalized experience

You are viewing Janes Account

Accounts
Manage your accounts and make payments.

TOTAL BALANCE
480,687
↗ +2.1% balance avg.

NEXT PAYMENT : WEST WING
$9,512.42
↘ -7.6%

TOTAL ENERGY SAVED
158.3kWh
49kWh saved in the last 30 days

GROUPS

$1,783.37 total
SOUTH WING 3
Detail view
Due 01/01/2020
⚡ OVERDUE

$9,512.42 total
WEST WING 3
Detail view
Due 01/01/2020
⏱ PAYMENT PENDING

$312,309.98 total
ENTRANCE + CORE 3
Detail view
Due 01/01/2020

SEE MORE

ENERGY USAGE
○ 2017 ● 2018 ● 2019
600

Deep dive: Nucleus addresses all key frictions

Feature	No customization	Too many accounts to manage	Lack of effective and efficient support	Confusing bills	Poor usage analytics
Account grouping & customization	✓	✓		✓	✓
Digital bill guidance		✓		✓	✓
Power analytics for your usage	✓	✓			✓
1-click customer assistance			✓	✓	
DIY payment allocation	✓			✓	
Screen mirroring smart support			✓		

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Two options exist for technical build

	Custom build solution	**Buy off-the-shelf solution**
Description	Develop new portal user experience for LC&I customers (Build new, leverage existing, reuse existing)	Buy an external off-the-shelf solution that provides matching portal capabilities
Architecture and design principles	✓ Technology **agnostic** ✓ Use **API** for decoupling ✓ Leverage **cloud** based solution ✓ Access data from "**Source of Truth**"	✓ Support industry standard **integration** patterns ✓ Minimize **customization** ✓ Offer **cloud** based solution ✓ Choose **established vendors**
Pros	✓ **Most customizable** user experience ✓ **Most scalable** and **flexible** platform ✓ Easiest to **integrate and leverage** existing middleware/core services ✓ Full control, ownership and **access to all data**	✓ **Fastest implementation** due to prebuilt capability ✓ **Lower** upfront **costs** ✓ Solution can be **SmartGrid ready** ✓ Design and development is **handled by vendor**
Cons	X Requires **largest engineering team** X **Higher** upfront **costs** X Higher **project coordination** required	X **Impact** to internal business **processes** X Future **upgrade cost** X Potential core systems **compatibility**

We've scanned a number of off-the-shelf solutions, none meet our needs

Solution	MVP fit	Systems integration	Product maturity	Adoption	Map to vision
DTE Energy | Landlord ❯ For landlords to manage electric and natural gas service on rental properties	◔	◑	◕		
Omniware Solutions ❯ Utilities billing and invoicing solutions with customer management capability	◑	◑	◕	❗ Not align with NG North Star vision	
OPOWER ❯ SaaS customer engagement platform for utility with data analytics	◔	◑	◕	❗ Low adoption rate due to impact to internal business processes	
SmartGridCIS ❯ Customer care and billing processes for regulated utility	◑	◑	◔		

Unmet needs

Key: ● 100% fit   ◔ 25% fit

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We conducted several tests to validate technical feasibility risks

		Testing Methods	Results	Next steps
	Buy vs Build options	• Interviews • Product evaluation • Engage Ent. Arch team	In Progress	• Can target platform integrate with ecosystem? • What additional security standards does Nucleus need to adhere to? • Can core systems scale to handle additional requirements?
	Project dependency	• Interviews • Engage Ent. Arch team	In Progress	• What functionalities can be leverage to increase self-serve capability? • How do we communicate / coordinate with other initiatives?
	Data availability & quality	• Data Analysis • Proof of Concept	✓ Validated	• Can we identify "Source of Truth" for all required data? • What are the effective ways to aggregate accounts? • What data do we need to improve transparency of payment?

Target state architecture: Portal to deliver new customer experience to LC&I customer
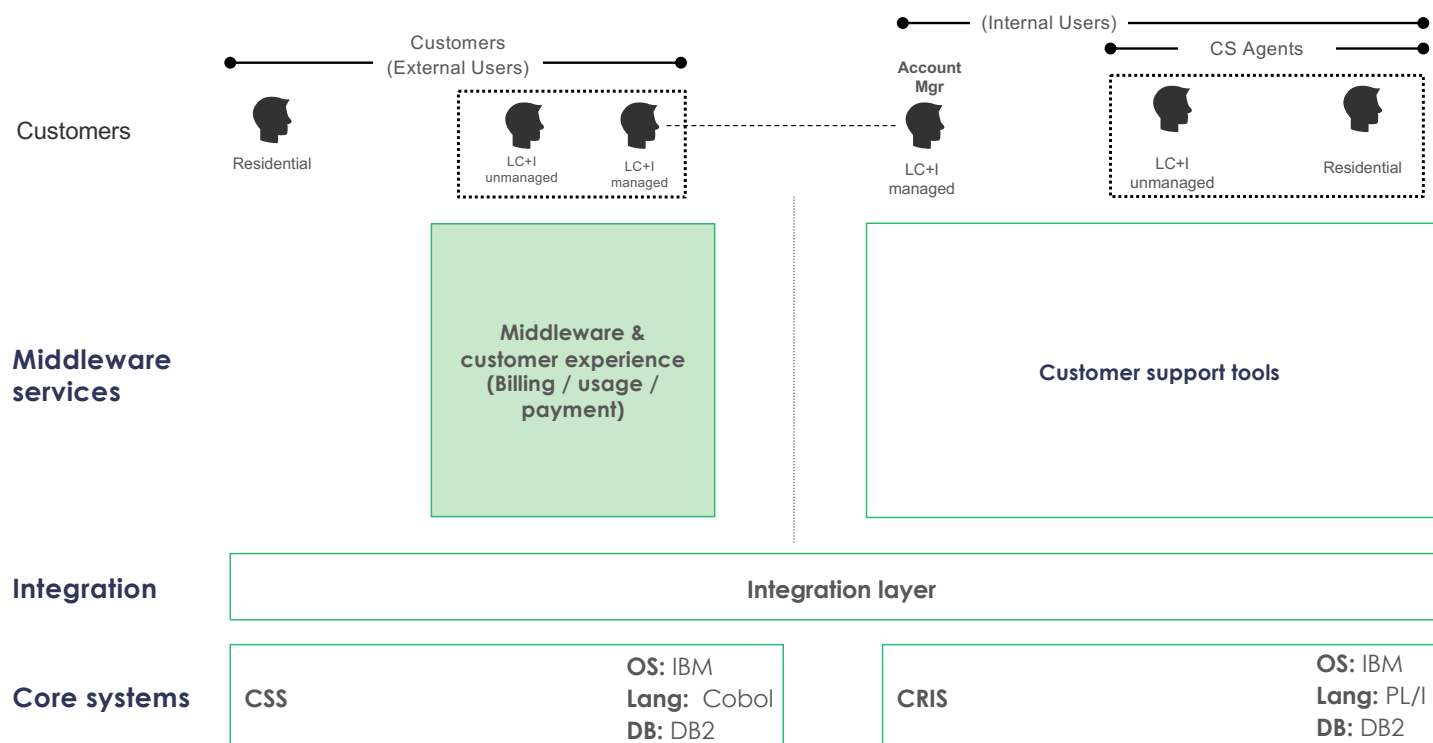
Customers

Customers (External Users)

(Internal Users)

CS Agents

Residential

LC+I unmanaged | LC+I managed

Account Mgr

LC+I managed

LC+I unmanaged | Residential

Middleware services

Middleware & customer experience (Billing / usage / payment)

Customer support tools

Integration

Integration layer

Core systems

| CSS | **OS:** IBM **Lang:** Cobol **DB:** DB2 |
| CRIS | **OS:** IBM **Lang:** PL/I **DB:** DB2 |

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We identified several ways to mitigate operational challenges we foresee

	Challenges	Approaches
Internal Alignment	Ownership **conflict** for **features and funding**	• Defining the **decision making team** and purpose at the beginning to avoid disruption down the line • Assign a **product owner**
Utilization	**Lack of resources** for internal and external **marketing campaigns**; unless the project is a priority it falls to the bottom of the list.	• Align with the web **self-service product line marketing plan** • Define external **marketing strategy** with appropriate analytics in place • Leveraging **past successful tools** (i.e. micro-marketing techniques and/or external vendor)
	Internal users will resort to the **tools** they are **most comfortable**/familiar with (examples from PX, CITE, GF)	• **Change management plan** • Champions **embedded** in business • Internal tracking and **measurement protocols** • CSRs- **BPA scoring** for process
Support Quality	**Inconsistency** in the **level of support** a customer will receive based on who they talk to	• **Mandatory trainings** and FAQ's • CSRs- **BPA scoring** for process • Ongoing customer **feedback loop**

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We've consulted internal counsel to understand regulatory requirements

Overall key takeaways:

- We see **few compliance issues**

- We'll **present** any **new features** to the commission

- Compliance will be **confirmed with each roll-out**

Legend:
- Electric
- Gas
- Electric and Gas

- Few regulations surrounding C&I customers
- No compliance issues stand out

- No compliance issues stand out

- Many regulations around billing information
- Commission staff sensitive to bill redesign
- No compliance issues stand out

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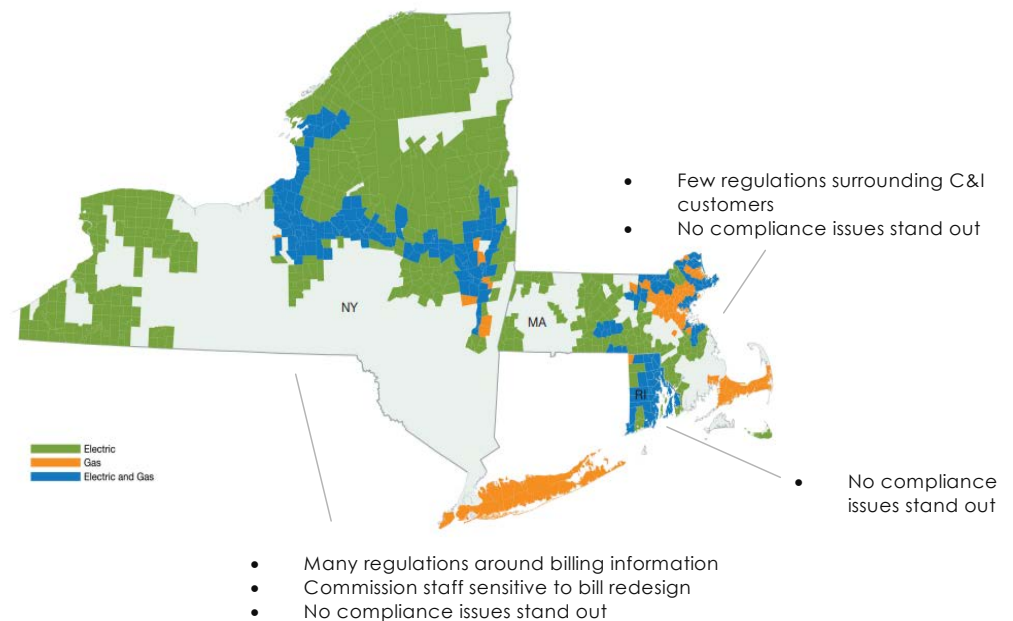
Nucleus has a specific build/acquire plan to get to market

Validation	MVP Definition	MVP Build Alpha	MVP Build Beta	Scale for Growth
	~10 Weeks	**~10-12 Weeks**	**~10-12 Weeks**	**~12 to 18 Months (ongoing)**
	Solidify **MVP concept** and **assess problem solution fit** through testing. Identify and prioritize **riskiest assumptions**	**Build functioning product** and continue **user testing to assess product market fit.** Solve for **operational risks**	**Complete MVP functionality** in preparation for **launch.** Expand user pilot and **validate lower risk assumptions**	**Launch and continue testing the product** with actual end users

	Goals	**Goals**	**Goals**	**Goals**
	• **Validate MVP features**	• **Create sprint plan**	• **Complete launch-ready MVP build**	• **Refine the MVP solution**
	• **Conduct initial build vs. buy assessment**	• **Begin executing operational rollout**	• **Onboard new team members**	• **Monitor product market fit**
	• **Establish a change management plan**	• **Start capability building based on resource needs**	• **Scale and monitor change mgmt impact**	• **Build and integrate new capabilities**
	• **Refine business model and GTM**	• **Complete alpha build**	• **Prioritize and validate lower risk assumptions**	• **Scale user base and iterate on acquisition plan**
	• **Conduct concierge testing**	• **Begin user pilots**	• **Expand user pilot**	• **Grow the team**

STAGE GATE 1
Validated MVP Vision
Go/ No-Go Primary
Risk & Proof Points

STAGE GATE 2
ALPHA Go Live
Go/ No-Go Secondary
Risk & Proof Points

STAGE GATE 3
MVP Go Live
Go/ No-Go Tertiary
Risk & Proof Points

Continue to evaluate build/buy/partner options

Our pilot strategy will increase the fidelity of the product

	MVP Definition	Alpha	Beta	Scale & evolve
BUILD What are we building?	**Define MVP features** and **assess product market fit** in user testing • Re-design digital bill • Ability for customers to filter and sort bills • Ability for customers to visualize and export usage data • Mirrored view for AM/CSR teams	**Develop functioning product** and continue **concept testing** • Deeper, intuitive explanation of bill • Custom account grouping • Increased transparency into payment status • Integration with chat for Nucleus Q's	**Harden & complete functionality** in preparation for **pilot launch** • Pay bills & view usage according to custom grouping • Clarity around next meter reading date • Self-serve payment allocation • Chat support	**Launch and test the product** with actual end users • Continue to expand on functionality and evolve towards product vision

Initial go-to-market strategy focuses on a specific customer segment with limited use cases

We will evaluate based on strategic-fit criteria

Roll-out strategy

DEFINE GEOGRAPHIC STRATEGY
Set phasing based on technical and jursidictional boundaries

LIMIT INITIAL USE CASES
Prioritize easiest / highest value use cases for immediate testing

LAUNCH WITH PILOT USERS
Focus on small subset of customers fulfilling specific characteristics

PARALLEL-PATH INTERNAL SUPPORT
Align with internal initiative roadmaps and support capacity

Considerations for geographic & segmentation prioritization

Customer Systems

Where does the customers' data currently sit?

Product functionality will be phased to support CSS/CRIS, which differ by jurisdiction

Account type

Does the customer acutely experience the frictions we are trying to address?

Painpoints are expontentially magnified by various factors
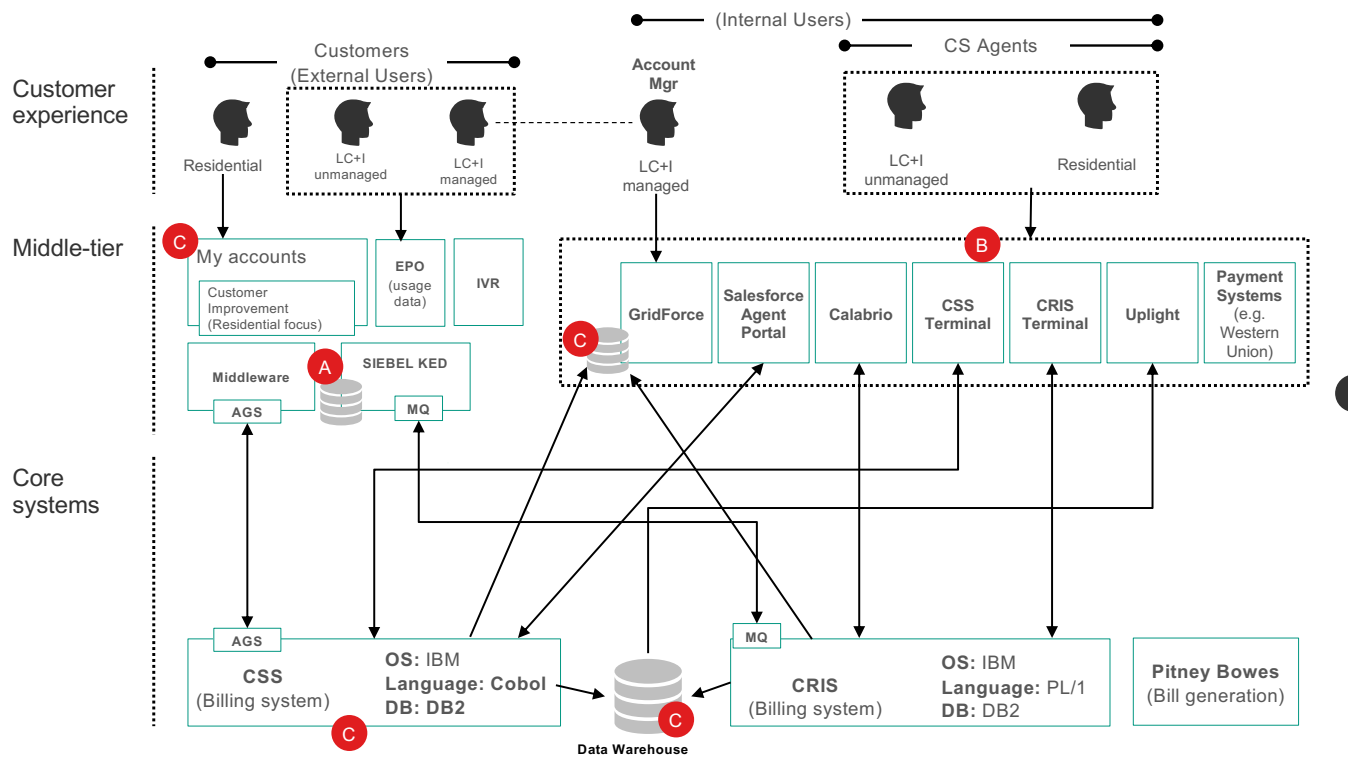
Relationship with NG

Will the customer be willing and available to co-create with us?

Successful launch will require factoring in specific feedback from pilots

Appendix

Current state architecture: Customers and internal users use different portals to access core system services

Key insights

A Non LC&I focsed user interace
- Provide non customer centric support for LC&I customers
- Require customers to use multiple in-consistence user interface

B Agents require multiple user interface to support customers
- No single view of customer information

C Duplicated customer billing functionality
- Duplicated account mapping information
- Data no sync before core systems
- Outdated core systems functionalities require upgrade