DECENTRALIZATION IN THE CONTEXT OF RESILIENT UTILITIES: NORTH CAROLINA'S VIABLE UTILITY PROGRAM

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ABSTRACT

North Carolina's Viable Utility Program was created by Session Law 2020-79, which became effective as of July 1, 2020. The intent of the program is to assess the infrastructure, organizational, and financial health of all local government owned water and wastewater systems in the state, identify "distressed" systems, and help distressed systems develop and implement a path to long-term viability. The program does this by implementing statutorily required and voluntary activities to strengthen local government systems, and by offering grant funding from the Viable Utility Reserve (VUR) for planning and project implementation.

Statutory requirements of distressed utilities include conducting an asset inventory and assessment, developing short-term and long-term plans for sustainable infrastructure, organizational, and financial management, and participating in an education and training program. The Viable Utilities program is unique within the State's funding programs (in the Division of Water Infrastructure) in taking a closer, and more proactive look at utility health, and also by recognizing that a variety of management alternatives need to be considered for long-term system viability. Accordingly, the statute lists among those projects that can be funded by the VUR, projects that "decentralize an existing public water system or wastewater system into smaller viable parts". Although the program is still relatively young, interest in decentralization has been limited. This paper represents an initial effort to explore the meaning of decentralization in the context of the Viable Utilities Program: what are the opportunities, benefits, and community engagement strategies that facilitate decentralization as a feasible and attractive approach to water and wastewater management for those systems for which it makes sense?

INTRODUCTION

The Division of Water Infrastructure (DWI or Division) was created by the North Carolina state legislature in 2013 through North Carolina General Statute (NCGS) 159G to consolidate funding programs that were previously administered by the Division of Water Quality, Division of Water Resources, and Department of Commerce. The Division administers programs to provide grants and low-interest loans to local government units for water and wastewater infrastructure projects. The legislation that created the division also created the State Water Infrastructure Authority (SWIA or Authority), an independent body with primary responsibility for awarding both federal and state funding for water and wastewater infrastructure projects. The Authority is made up of nine members.

Division-funded projects include sewer collection and treatment systems, drinking water distribution systems, water treatment plants, storm water management systems, and stream restoration. Division funding programs include the Drinking Water State Revolving Fund

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(DWSRF), Clean Water State Revolving Fund (CWSRF), Community Development Block Grant-Infrastructure program (CDBG-I), State Wastewater and Drinking Water Reserve programs, Merger/Regionalization Feasibility Grants (MRF), Asset and Inventory Assessment Grants (AIA) and the Viable Utilities program (VUR) (NCDEQ, 2022a).

DWI represents the primary source of state-administered water and wastewater funding in the state. In 2021 alone, the Division awarded about $507.7 million in grants and loans for 175 projects. With the allocation of state American Rescue Plan Act (ARPA) funds during the FY 2022-2023 budget cycle, DWI awarded a record $789.4 million in water and wastewater infrastructure funding to help pay for 385 projects statewide, including 140 construction projects, in the first of two 2022 funding rounds (NCDEQ, 2022b).

The most recent assessments of water infrastructure needs in North Carolina are the two needs surveys conducted by EPA for the CWSRF and the DWSRF. The most recently published surveys list the needs for North Carolina as $5.2 billion for clean water such as wastewater treatment systems and sanitary sewers and just over $10 billion for drinking water (NCDEQ, 2022a).

The funding programs administered by DWI and approved by SWIA are governed by the aforementioned statute 159G and guided by the 2017 master plan, "*The Road to Viability"*. The master plan focuses on the importance of infrastructure, organizational and financial management for the long-term viability of North Carolina's public water and wastewater utilities (NCDEQ, 2017). Although DWI's funding programs have long recognized these factors through its priority rating systems for funding awards and through its project management processes, the Master Plan set in motion efforts to address utility management and health more directly and proactively. An overarching goal is for State investments in community water infrastructure to build or reinforce proactive and robust utility management practices that improve long-term system viability.

Accordingly, HB 1087 was signed into law (SL 2020-79) by North Carolina Governor Roy Cooper, and took effect starting July 2020. This legislation directed SWIA and the Local Government Commission (LGC or Commission) to develop a process for assessing the infrastructure, organizational, and financial health of local government owned water and wastewater systems and to develop criteria for identifying "distressed" utilities. Distressed utilities are eligible for grant funding from the Viable Utility Reserve (VUR) and have statutory requirements intended to promote utility management best practices and facilitate long-term system viability.

Distressed Unit Identification

NCGS 159G-45 requires that SWIA and the LGC develop criteria to determine how local government units should be assessed and reviewed, and stipulates that the following criteria shall be addressed:

(1) Whether the public water or wastewater system serves less than 10,000 customers.
(2) Whether the public water or wastewater system has an established, operational, and adequately funded program for its repair, maintenance, and management.
(3) Whether the annual debt service is disproportionate to the public water or wastewater system's annual revenue.

(4) Whether the local government unit has appropriated funds from its utility or public service enterprise fund in accordance with G.S. 159-13(b)(14) in two or more of the preceding five fiscal years without maintaining a reserve fund sufficient to provide for operating expenses, capital outlay, and debt service.
(5) Whether the local government unit has appropriated funds to supplement the operating expenses, capital outlay, or debt service on outstanding utility or enterprise bonds or notes in excess of the user fees collected in two or more of the preceding five fiscal years.

The following criteria were approved by SWIA and the LGC in November 2020:

1. A Local Government Unit (LGU) whose fiscal affairs are under the control of the Commission pursuant to its authority granted by G.S. 159-181 ("under Commission fiscal control"), or
2. An LGU that has not submitted its annual audits for the last two (2) fiscal years to the Commission as required by G.S. 159-34, or
3. An LGU with a total Assessment Criteria[2] score that:
    a) Equals or exceeds 9 for LGUs providing both drinking water and wastewater services, or
    b) Equals or exceeds 8 for LGUs providing only one service, either drinking water or wastewater, or
4. An LGU for which other information is available to or known by the Authority or LGC that reflects and is consistent with, but does not expressly appear in, the Assessment Criteria to account for situations in which the Assessment Criteria score does not wholly or accurately reflect a system's level of risk due to the limitations of available data.

Distressed Unit Requirements

NCGS 159G-45 requires that distressed units do the following:

(1) Conduct an asset assessment and rate study, as directed and approved by the Authority and the LGC.
(2) Participate in a training and educational program approved by the Authority and the LGC for that distressed unit. Attendance shall be mandatory for any governing board members and staff whose participation is required by the Authority and LGC. The scope of training and education, and its method of delivery, shall be at the discretion of the Authority and LGC.
(3) Develop an action plan, taking into consideration all of the following:
    a. A short-term and a long-term plan for infrastructure repair, maintenance, and management.
    b. Continuing education of the governing board and system operating staff.
    c. Long-term financial management to ensure the public water system or wastewater system will generate sufficient revenue to adequately fund management and operations, personnel, appropriate levels of maintenance, and reinvestment that facilitate the provision of reliable water or wastewater services.
    d. Any other matters identified by the Authority or the LGC.

Viable Utility Reserve Grants

[2] See https://deq.nc.gov/wi/vur/vur-assessment-criteria/download for a list and description of the assessment criteria, which is used to assess the viability of all LGU-owned water and wastewater systems in the state annually

NCGS 159G-32 establishes the project types eligible for grants from the VUR:

(1) Provide physical interconnection and extension of public water or wastewater infrastructure to provide regional service.
(2) Rehabilitate existing public water or wastewater infrastructure.
(3) Decentralize an existing public water system or wastewater system into smaller viable parts.
(4) Fund a study of any one or more of the following:
    i. Rates.
    ii. Asset inventory and assessment.
    iii. Merger and regionalization options.
(5) Fund other options deemed feasible which result in local government units generating sufficient revenues to adequately fund management and operations, personnel, appropriate levels of maintenance, and reinvestment that facilitate the provision of reliable water or wastewater services.
(6) Provide emergency grants for operating deficits… *(only for units whose finances are under the control of the LGC)*

Although decentralization is listed as an eligible project type, to our knowledge no local government unit is explicitly considering or pursuing a decentralization project under NCGS 159G-32(3). By contrast, the Division has multiple examples of regionalization [NCGS 159G-32(1)], and rehabilitation [NCGS 159G-32(2)] projects for distressed local government units.

DISCUSSION

North Carolina's Viable Utilities program is relatively new and experiencing an extremely high rate of growth driven by both the number of designated "distressed" units in the state (currently, 131), as well as the unprecedented amount of funding allocated to this and other Division programs in the State's 2022-2023 biennial budget. Given the massive increase in funded project workload, the Division has been hiring and continues to hire staff for all of its groups including Viable Utilities. Because of the tight timelines on using ARPA funds, project management processes have been streamlined, and many ARPA-funded projects are ones that have "been on the books" of their utilities for some time. Accordingly, proactive and comprehensive water/wastewater infrastructure planning, especially among distressed systems, is nascent. Not surprisingly, no local government units have chosen to "decentralize" yet as part of their long-term viability strategy.

Although there is temptation to think of this as another lost opportunity for transforming community water and wastewater infrastructure, the VU program – and others like it – are not intended to be static, one-off efforts. Getting distressed units on the right track, and then working with them to adapt their plans as necessary given rapidly changing environmental, societal, and financial factors will be a long-term if not perpetual effort, particularly in a state like North Carolina that features a high number of public water and sewer providers, with many in small and rural communities.

After two annual rounds of "scoring" all local government units with water and wastewater systems, North Carolina has 131 systems designated as distressed out of a total of 487 units NCDEQ, 2022c). In most cases, distressed units will take at least several years to meet their statutory obligations and be eligible to come off the distressed list, meaning that this list of 131

will increase annually for the foreseeable future. All of this is to say that, even with the recent massive influx of funding, the need for innovative and cost-effective water infrastructure solutions will remain for a long time to come.

Nevertheless, the statutory language of NCGS 159G-32(3) raises interesting questions for even experienced practitioners in the decentralized wastewater industry. What does decentralization mean in North Carolina's VU context, and in the broader context of public water and sewer utilities in the US and abroad? This paper represents an initial effort to begin a conversation – within and outside of North Carolina – about how the benefits of decentralized wastewater management can be brought to communities with existing, often failing, public wastewater infrastructure. Doing so will require:

- Fair and consistent consideration of infrastructure alternatives in engineering analyses
- Unbiased community consideration of decentralization
- Approaches that facilitate a smart and smooth transition between existing system architecture and new system architecture

There are certainly other questions and key considerations that can be addressed, but these three alone clearly emphasize the importance of the softer sciences (e.g., public facilitation, communication, education) into what can be technically-focused decisions, and the "silent" institutional barriers that continue to make transformative water infrastructure solutions difficult (i.e., when implementation of more traditional approaches is so much more streamlined).

Intent of Statutory Language

Although North Carolina's general statutes generally include definitions where applicable, the Definitions section of the Division's statute, NCGS 159G-20, does not include the word, "decentralize" or any derivative thereof. In fact, the only reference to decentralization comes in the eligible projects statute previously mentioned (NCGS 159G-32), "*Decentralize an existing public water system or wastewater system into smaller viable parts*." The Oxford dictionary defines *decentralize* as "transfer (control of an activity or organization) to several local offices or authorities rather than one single one." In the context of a utility "system", we can take the statutory language broadly; that is, the (collection, treatment) system could be decentralized, the utility organization could be decentralized, or both.

Additionally, there exists a robust record of public discussions around water infrastructure funding, and the development and implementation of the VU program in particular, much of which can be found in the minutes and actions of SWIA and the LGC. From these discussions, it becomes clear that – not surprisingly – the high unit (i.e., per connection) costs of some projects is of concern and that lower-cost alternatives need to be considered. In North Carolina, where upwards of half the population is served by individual onsite (e.g., septic) systems, it is easy to visualize abandoning failed public infrastructure, and "going back to" septic systems. In fact, public officials have made the case that customers could just be given new septic systems at a fraction of the cost of other alternatives. Although this contention is simplistic, the point that there are often lower cost alternatives that deliver similar levels of service is indisputable. After decades of (often erroneous or downright dishonest) justifications of centralized sewer and sewer extensions to "fix failed septic systems", however, it will be difficult to convince customers of the benefits of decentralization without careful transition planning.

Decentralization and Funding Approaches

Although North Carolina is often considered a leader in decentralized wastewater management, efforts to *fund* such projects is seriously limited by restrictions on the use of North Carolina's CWSRF funds which prohibits awards to private entities. As it stands today, only a public entity (i.e., local government unit) can receive CWSRF funds for a decentralized project. One way "around" this obstacle has been to pilot a program whereby the CWSRF awards funds to a County to administer a program to subaward funds to public or private entities for decentralized wastewater projects. Other communities in North Carolina have implemented similar in-house funding programs on their own. The Town of Nags Head on the Outer Banks of North Carolina has a well-developed decentralized wastewater management plan and program, the Septic Health Initiative (Town of Nags Head, 2022). The Town offers low-interest loans for repairs and replacement. The maximum loan amount is $12,000. the loan rate is the prime rate minus 2.5% (non-compounding), and the loan can be paid back over a thirty-six month period.

North Carolina is an active participant in a related effort in collaboration with the US Environmental Protection Agency (EPA) – Office of Wastewater Management called "Closing the Wastewater Access Gap" which focuses on providing wastewater service to disadvantaged areas with problematic onsite systems. The program is being piloted in two rural eastern North Carolina counties, Duplin County and Halifax County. The Halifax County project, in particular, may benefit from publicly owned and operated decentralized systems to serve the community of Hollister. An engineering analysis estimated that costs for strategically sited decentralized systems serving clusters of homes in the rural hamlet would cost less than half as much as connecting to a public wastewater system about 10 miles north of Hollister (Tetra Tech, 2014).

Decentralization comes in many shapes and sizes. There are a number of public water and wastewater utilities in North Carolina that own and operate multiple collection and/or treatment systems – often the result of one larger utility taking ownership and operation of one or more small systems. By strict definition, these subsystems are decentralized, and by extension many North Carolina utilities can effectively manage them as decentralized systems. However, for practitioners, decentralized systems are often defined more by their dispersal and ownership characteristics, that is, decentralized systems are often soil-discharging systems, and often privately owned systems. The institutional barriers that make these attributes unattractive to utility managers will need to be addressed to facilitate the appropriate use of decentralization in promoting utility viability.

VU Program Considerations

When all is said and done, the primary vehicle for distressed units to become viable is in their required long-term plan which requires (in part), "financial management to ensure the public water system or wastewater system will generate sufficient revenue to adequately fund management and operations, personnel, appropriate levels of maintenance, and reinvestment that facilitate the provision of reliable water or wastewater services". In other words, the system has to be financially self-sustaining; that is, fully funded through (mostly ratepayer) revenues, without requiring the infusion of grant funding. Meeting this standard will demand that some distressed units and their professional consultants think outside of the box, and consider decentralization, resource recovery and reuse, and other innovations moving forward.

In rural North Carolina, the economic benefits of resource recovery and reuse – particularly of nutrients for agriculture and biogas for energy – could be transformative. For example, the Town of Colerain in Bertie County in northeastern North Carolina has a spray irrigation system which is contract farmed for soybeans, corn, and even cotton, generating about $10,000 per year in additional revenue which helps the town limit sewer rates. It is not difficult to envision rural communities using decentralized approaches to recover and reuse resources that help offset imported resources, like fertilizers. Awarding "innovation points" or using sustainability-focused metrics during the review of project applications may incentivize more impactful approaches which have benefits that cascade through the community.

Decades of research and capacity building in the decentralized and distributed wastewater management field have generated a wealth of relevant and highly-useful information for the successful management of decentralized systems. For example, under the National Decentralized Water Resources Capacity Development Project, the Water Environment Resource Foundation administered several research projects that explore new or emerging uses and management approaches for decentralized systems. As just one example, *When to Consider Distributed Systems in an Urban and Suburban Context* developed case studies and lessons learned for successfully managing both traditional (small towns, rural areas) and emerging uses of decentralized systems (DWRC, 2022). For North Carolina's distressed systems, decentralization can be used as a tool for managing the costs of growth, for leveraging resource recovery to promote circular economies, and for a host of other reasons. This accumulated research will be invaluable as the VU Program and its stakeholders and customers consider a wide range of alternatives for long-term viability.

CONCLUSION

North Carolina's Viable Utility Program provides the framework and mechanisms for distressed public water and wastewater utilities to plan and implement management approaches that will ensure their long-term viability. Based in part on feedback from SWIA, the LGC, Division staff, and other stakeholders, North Carolina's Legislature and Governor recognized the importance of decentralized approaches in achieving a vision of viable utilities throughout the state through the passage and ratification of SL2020-79. As the VU program continues to be developed and implemented, program managers and participants will continue to draw from utility best practices across a wide range of infrastructure, organizational, and financial management attributes, including those that maximize the benefits of decentralization for public utility systems. Potential transitions from fully centralized to decentralized systems could be tricky for communities, and will require broad coordination, knowledge sharing, and collaboration. However, where appropriate, the benefits of managed decentralized systems can and will be transformative.

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