RENEWABLE NATURAL GAS

Don't let technical requirements be your barrier to a **Renewable Natural Gas (RNG)** solution. Magnolia River Services has the experience and trusted partners to solve your technical challenges to help maximize your Renewable Identification Number (RIN) credits under the Federal Renewable Fuel Standards (RFS) program.

The impact of rising customer demand for natural gas coupled with federal and state initiatives for decarbonization has led many natural gas utilities to look for innovative ways to satisfy both without breaking the bank.

The use of RNG solutions is quickly becoming one of the preferred methods to meet increasing supply needs while also reducing the carbon footprint of utilities. The Coalition for RNG reports that projects in operation, under construction, or planned have nearly tripled in the past three years. RNG is a clean, affordable and reliable alternative for utilities to efficiently address future demand needs while also meeting greenhouse gas reduction goals.

According to the American Gas Association's RNG Activity Tracker, some of the largest natural gas utilities in the United States (Duke Energy, Southwest Gas, TECO, Consumers Energy, Dominion) have RNG projects planned, under construction, or already in service. Magnolia river has participated in several Renewable Natural Gas (RNG) projects over the past few years in varying capacities.

MAGNOLIA RIVER®

ABOUT MAGNOLIA RIVER

Magnolia River is an industry-leading utility solutions provider specializing in professional services, field services, and software with a focus on serving utility clients in the natural gas, power, and renewable energy sectors.

For more than 20 years we have been leaders in the utility sector, actively serving on committees and boards for state and national level utility associations. In the renewables energy sector specifically, we serve on both the APGA and AGA Renewable Natural Gas Committees.

Magnolia River's Engineering team provides services ranging from permitting and replacement programs to turn-key engineering and project management for distribution, transmission, and renewable energy projects.

Contact us today to learn more about our comprehensive RNG solutions.

rng@magnolia-river.com

EXAMPLE PROJECT ONE

10,000+ head dairy farm in south Florida where the farm constructed four large manure handling, anaerobic digesters and two conditioning facilities delivering 1054 MMBtu/day. Magnolia River's role was to provide our client, a public utility, Project Management and Engineering Design for all biogas pipeline transportation facilities (CFR 192 related facilities). Magnolia River worked closely with our client, farm personnel, and developer over the course of 23 months to complete the project.

Services Provided:

Project Management: Management of the pipeline and pipeline facilities design, development of schedules, development of forecasts, monthly and weekly reports, bid package development, project bidding, assist client in contractor selection, construction management.

Pipeline Route Development: Development of 5.6 miles of raw biogas and 1.9 miles of conditioned biogas pipeline routes.

Pipeline Design: Development of pipeline designs taking into consideration expected volumes and flow characteristics to determine pipe size and material to be used. Pipeline designs included *route survey, alignment sheets, boring designs, pipeline specifications, wetlands delineation, *storm water pollution prevention (SWPPP), construction specifications, *cathodic protection (CP) design and pipeline details.

Facilities Design: Design of two transmission pipeline interconnects, two RNG filter and meter sites, two compression sites, and four raw biogas handling valve/custody transfer sites. Each facility design included, *site surveying, site layout, *geotechnical assessment, grading plan, piping and instrumentation drawings (P&ID), piping plans, fabrication drawings, piping 3D models, bill of materials, material specifications, conduit plans, conduit schedules, fencing details, power details, CP design, construction specifications, and details.

Permitting: Assisted client with county local permitting related to building and electrical.

Procurement Assistance: Assisted client with material specifications, fabrication drawings, contractor selection, and bill of materials.

Construction Management: Management and reporting on all construction activities.

**Services provided by a subcontractor, procured and managed by Magnolia River*

MAGNOLIA RIVER

EXAMPLE PROJECT TWO

9,000 head dairy farm in north Florida where our client, a public utility, commissioned the design and construction of biogas facilities using biogas produced from an existing anaerobic digester. Magnolia River's role was to provide our client complete project management along with the design of biogas pipeline transportation facilities (CFR 192 related facilities) delivering 350 MMBtu/day. Magnolia River worked closely with our client, farm personnel, RNG facilities designer, and contractors over the course of 24 months to complete the project.

Services Provided:

Project Management: Management of pipeline and RNG facilities design, development of schedules, development of forecasts, monthly and weekly reports, bid package development, project bidding, assist client in contractor selection, construction management.

Pipeline Route Development: Development of 1.25 miles of a conditioned biogas pipeline route.

Pipeline Design: Development of pipeline designs taking into consideration expected volumes and flow characteristics to determine pipe size and material to be used. Pipeline designs included *route survey, alignment sheets, boring designs, pipeline specifications, wetlands delineation, construction specifications, and pipeline details.

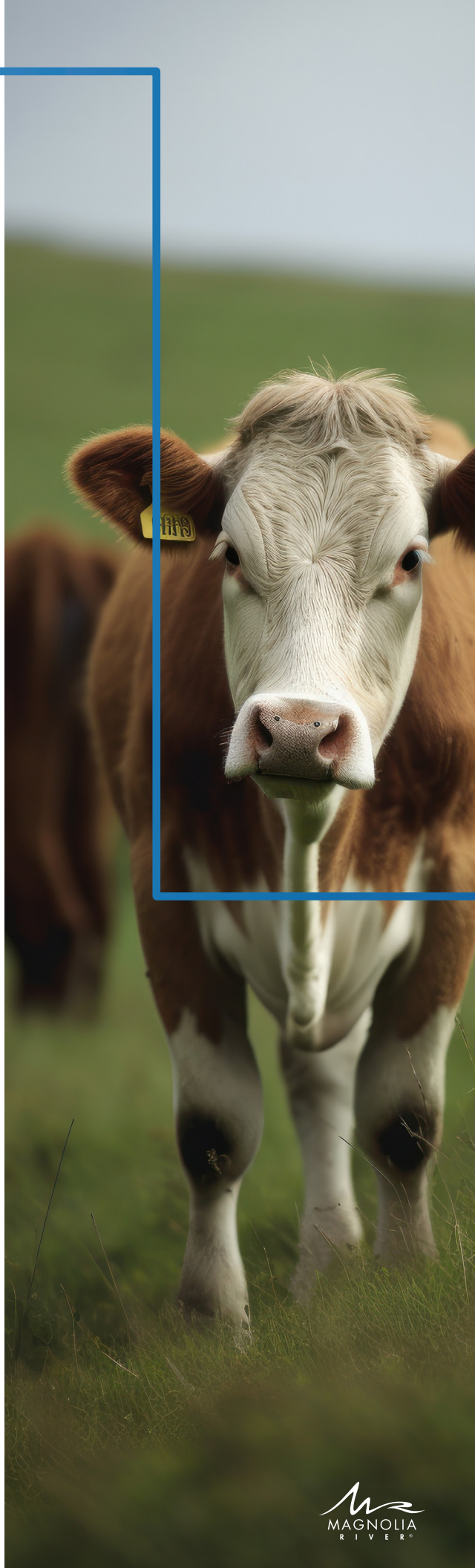
Facilities Design: Design of a transmission pipeline interconnect and a gas receipt regulator station. The interconnect design included, *site surveying, site layout, *geotechnical assessment, grading plan, P&IDs, piping plans, fabrication drawings, piping 3D models, bill of materials, material specifications, conduit plans, conduit schedules, fencing details, power details, *CP design, construction specifications, and details.

Permitting: Assisted client with county local permitting related to building and electrical.

Procurement Assistance: Assisted client with material specifications, fabrication drawings, contractor selection, and bill of materials.

Construction Management: Managed the construction on the RNG Facility, pipeline, and interconnect facilities providing reporting on all construction activities.

**Services provided by a subcontractor, procured and managed by Magnolia River*



EXAMPLE PROJECT THREE

A landfill gas interconnect and pipeline in central Missouri where our client, a public utility, commissioned the Engineering, Procurement and Construction (EPC) of a biogas interconnect and pipeline facilities. Magnolia River's role was to provide our client EPC services related to our client's proposed facilities (CFR 192 related facilities) delivering 1100 MMBtu/day. Magnolia River has worked closely with our client, landfill owner, landfill personnel and landfill owner's EPC contractor.

Services Provided:

Project Management: Management of pipeline and RNG facilities design, development of schedules, development of forecasts, monthly and weekly reports, bid package development, project bidding, manage procurement and contractor selection, and construction management.

Pipeline Route Development: Development of approximately 1000 feet of a conditioned biogas pipeline route.

Pipeline Design: Development of pipeline designs taking into consideration expected volumes and flow characteristics to determine pipe size and material to be used. Pipeline designs included *route survey, alignment sheets, boring designs, pipeline specifications, wetlands delineation, *SWPPP, construction specifications, *CP design and pipeline details.

Facilities Design: Design of a pipeline interconnect to the client's distribution system. The interconnect design included, *site surveying, site layout, *geotechnical assessment, grading plan, P&IDs, piping plans, fabrication drawings, piping 3D models, bill of materials, material specifications, conduit plans, conduit schedules, fencing details, power details, *CP design, construction specifications, and details.

Permitting: Develop and submit local permitting packages related to building and electrical.

***Environmental Assessment and Permitting:** Provide environmental assessment and develop and submit permitting packages related interconnect and pipeline.

Procurement Assistance: Magnolia River procured all materials and labor for the project.

Construction Management: Magnolia River procured and managed a construction contractor to build the pipeline and interconnect facilities, providing client with reporting on all construction activities.

**Services provided by a subcontractor, procured and managed by Magnolia River*

MAGNOLIA RIVER®