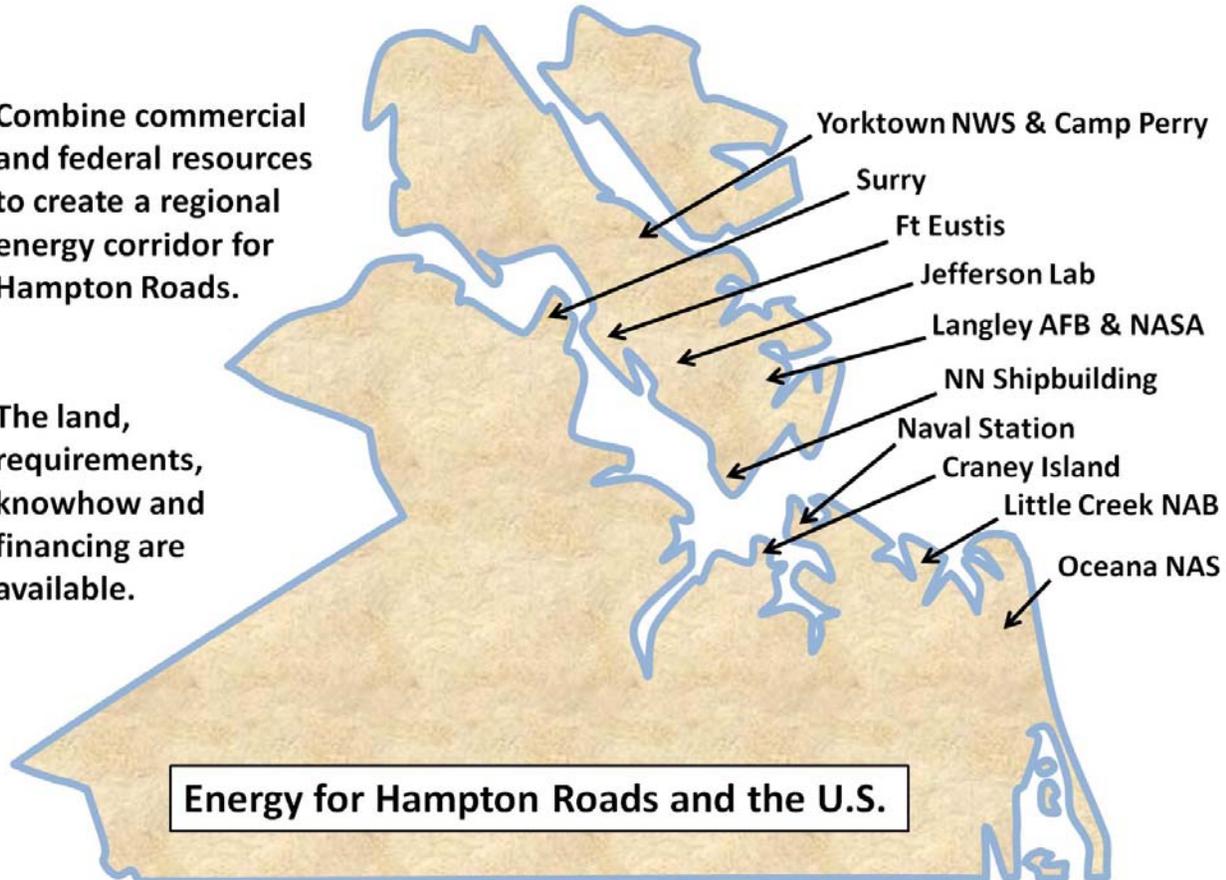


# Hampton Roads Energy Corridor

*Vision: Establish an energy corridor in Hampton Roads based on unique regional assets providing long-term sustainable power options for the region's facilities, and act as a centerpiece for business development, R&D, education and training for the region, state and U.S.*

Combine commercial and federal resources to create a regional energy corridor for Hampton Roads.

The land, requirements, knowhow and financing are available.



**Approach for Sustainable Energy Sources:** Of the primary sustainable energy sources, four appear applicable for a Hampton Roads Energy Corridor: large reactors, Small Modular Reactors (SMRs), off-shore wind energy and bio-fuels. Taking into account licensing, financing, technology maturity and infrastructure, it appears that SMRs and wind energy are likely to be commercially viable on the shortest timescales, on track to be market-ready by 2020.

**Unique Opportunity:** Hampton Roads with its distributed federal facilities, innovative technologies and commercial infrastructure has a unique combination of expertise, space and mission need to leverage the region's political and financial interests to create a long-term sustainable energy corridor. With resources such as off-shore wind, existing multiple SMRs onboard ships at several of the federal facilities; local commercial expertise in building and operating SMRs, large reactors and associated electric power grids; and local universities and groups engaged with the development of bio fuels and wind technologies, a strong foundation exists in Hampton Roads. Expanding the capabilities of SMRs to supply power to both the federal facilities and the community and finding ways to integrate them with other sustainable emerging energy sources is a critical next step.

**Siting, Space and Security:** Many of the federal facilities need to be able to go off-grid in case of an emergency or threat situation. Since many of these same facilities have adequate land/space and can provide the security of that space, a natural solution is to distribute the SMRs as required. Availability of space is also important for the other sustainable energy technologies.

**Integrating Operations:** To reduce costs and complexity, the concept for the Hampton Roads Energy Corridor is to have a single operator for the distributed facilities and to use similar SMRs at each site. In this way training, maintenance and operations can be integrated across the sites as an inherently resilient system, with the region providing the requisite modeling and simulation capabilities for the distributed system.

**Licensing:** The U.S. Department of Energy is taking on the task of working with commercial vendors to obtain licenses for SMRs. The Department is also working to fast track wind energy licensing. Assuming these DOE initiatives are successful, wind energy and SMRs can be operational by 2020.

**Waste:** The short term plan for waste is to store it. The long term plan is to use it as fuel for a new generation of reactors currently under development that in addition to using the waste as recycled fuel will reduce the waste's lifetime from ~100,000 years to ~300 years.

**Liability and Risks:** The leading management option is to use a Government Owned Contractor Operated (GOCO) model for operating the Hampton Roads Energy Corridor. This results in a shared liability/risk model that has proved very successful for the operation of the U.S. DOE laboratories (several of which have nuclear activities) and some DoD and NASA facilities.

**Financing:** Projected electric rates are comparable with current commercial rates, and will likely be more competitive as fuel prices rise. Consequently, financing will be available that both the commercial and federal facilities can utilize. The pricing for nuclear based power is projected to be relatively stable compared with fossil fuel prices.

**Field Operations Training:** Some U.S. military requirements for operating outside of the U.S. may be optimally met by deploying SMRs. Local operational SMRs and other sustainable technology facilities will allow commercial and military facilities personnel to be trained on the newest technologies for energy systems, including those that could be deployed in the field in military operations to provide a reliable power source.

**Liquid Fuels:** As part of a long-term diversified energy independence strategy, Hampton Roads is rich in biomass that SMRs will be able to convert to liquid fuels, e.g. gas, diesel and jet fuel.

**Community Participation:** The Hampton Roads Partnership has existing relationships that can bring the community together to support a regional Hampton Roads Energy Corridor that benefits all of the elements of the region in terms of job creation, sustainable energy and new business development thereby keeping the region globally competitive.