

PUBLIC FUNDING

The Virginia General Assembly has already passed or has already proposed several pieces related legislation relevant to nanotechnology.

House Bill 134 which passed earlier in the year, revised IP policies for the Commonwealth (some research may be necessary to determine if any licensing provisions were placed in the legislation);

House Bill 329 creates a technology and biotechnology R&D fund to attract companies to the Commonwealth and to assist those already in the Commonwealth;

House Bill 935, which was continued into 2007, requires a council of higher education to establish a nonprofit, non-stock corporation to assist the Council in supporting academic research and research initiatives, with an emphasis in biotechnology and nanotechnology.

House Joint Report 25, establishes a study to find ways to provide incentives to students to pursue careers in Virginia that include nanotechnology.

Sub-Committee Recommendations

Consideration should be made to the legislative creation a Virginia Nano-Technology Authority, (or alternately, amendment of the Virginia Bio-Technology Authority to include public funding of nanotechnology initiatives) for the purposes of establishing economic support for and raising dedicated funds for use in executing broader nanotechnology initiatives.

Creation of and funding for 'NanoEnterprise' business accelerator

Virginia Nano Business Accelerator

To address critical needs as outlined, it is proposed to develop a 'Nano-Enterprise' Business Accelerator Range of Services. The Virginia Nano Business Accelerator would provide companies a full range of services to support the development and growth of their nanotechnology businesses:

- **Management support:** The NanoEnterprise team helps develop nano tech enterprises by providing a wide breadth of executive-level management advice and support. NanoEnterprise supports companies on issues of strategy and market positioning, product development, operations, strategic alliances, financing, and organization development. NanoEnterprise develops an extensive network of management and

technical executives and managers that are interested in working with start-up nano tech companies.

- **Research and Clinical Collaborations:** NanoEnterprise enjoys close working relationships with the many world-class clinical and research institutions in Virginia. The NanoEnterprise partners — Virginia based academic centers — are committed to working closely with nano tech service start-ups. NanoEnterprise can help companies access these institutions, facilitating technical validation and development collaborations.
- **Investment Capital and Other Start-up Funding:** NanoEnterprise supports companies looking to raise investment capital and other start-up funding by maintaining relationships with angel investors, nano tech venture capital firms, private equity groups, and investment banks across the country. NanoEnterprise supports its companies by ensuring that companies are prepared for raising capital. In addition, NanoEnterprise would work closely with several Virginia seed funding sources for start-up funding. Finally, NanoEnterprise helps companies identify grant (DoD, federal and state) opportunities to support product and market development.
- **Business Development:** NanoEnterprise brings a network of industry contacts and business development experience to help companies explore and enter strategic relationships. The network includes leading medical technology, computer, and materials companies, as well as strategic advisory firms.
- **Resource Network:** NanoEnterprise would develop a network of regional capabilities and consultants to support the growth of nano tech companies. The capabilities include technical equipment and services, research services, and incubation space, including the NanoEnterprise facility. The consultants span all aspects of commercializing a nano tech technology from basic market research through product and regulatory development to support to marketing and sales support. Finally, NanoEnterprise has also established a set of preferred relationships with professional service firms for business law and intellectual property, accounting and business administration, and regulatory services.

Funding of Direct Grants

Educational grants

Attracting cutting edge academic talent away from other regions

Promoting fundamental and applied research activities within Virginia

Incenting students to study nanotechnology

The results of the study commissioned by HJR 25 should be helpful regarding distributions made to students.

Funding of Virginia Business grants

The business grants may be awarded based on the recommendations of the NanoEnterprise staff to the Authority and be subject to limitations such as company or attainment of specific milestones in their respective business plans. For example, grant money may be allocated based on stage of development, i.e. as discoveries are made, as collaboration is undertaken, and as prototyping is completed.

Proof of concept grants

These grants are designed to preclude SBIR/BAA/STTR grants and would be available to companies to establish proof of concept or validation of a particularly promising nano-technology application. Grant size would be limited to _____ and available on a one-time only basis to that application. Companies over a particular size would be excluded.

Non-Matching Grants for seed and bridge funding

This funding can include Phase 0 funding to stimulate SBIR/STTR proposal development, and staged grants to support product development and investments in manufacturing infrastructure. These grants would be funded through the Nano-Technology Authority and administered by the NanoEnterprise business accelerator.

Facility grants

Grants may also be made to promote brick and mortar development in addition to funding work. We believe money has already been set aside to create a research facility on the I-81 corridor. Provide mechanisms for small businesses to access to low cost or below market rate laboratory facilities and office support and space for business development and to reduce the initial R&D costs.

Matching gifts, grants

Businesses and other entities within the Commonwealth may also receive matching grants. These can be triggered by the organization first receiving a grant from another organization, such as SBIR, as well as from private sources. The matching grants may be matching dollar for dollar as well as at higher ratios. Matching may also be contingent upon commitment of angel funding.

Massachusetts has some legislation setting out parameters of a matching program. See Mass Gen. Laws ch. 40J, sec. 4F.

Forgivable loans

Businesses may also be eligible for low interest, non-recourse or forgivable loans available through the Nano-Technology Authority. This technique is used by several states (Maryland TEDCO is one example). Should a company be successful, repayment schedules would be amortized over 7-10 years and allow replenishment of portfolio

funds. Equity warrants may also be issued to the Authority in conjunction with loans to help offset losses with incremental funds when companies are successful.

Companies that are not successful will have loans converted into grants. An advisory panel of technical and business nanotech experts would be recruited and created to review proposals and score proposals that are approved by the Authority.

Tax incentives

Tax incentives may also be offered for more mature companies and for companies that exceed certain annual revenues or income levels. Generally speaking, tax credits could take the form of:

- Nanotechnology investment tax credits – credits of _____ (10 – 15% recommended) of eligible capital expenditures, designed to allow carry forward/back of credits and fungibility (ability to purchase and sell) while encouraging direct investment in nanotechnology.
- income tax credits – income tax credits designed to lower the marginal tax rate of nano-technology companies relative to Virginia’s current marginal tax rate. The credits would lower the marginal tax rates to nano-technology firms substantially based in Virginia by _____(recommended 1%-3%) percentage points.
- income tax deferrals – in order for startup firms to conserve scarce cash flows, creating nanotechnology specific tax deferrals will allow firms to generate stronger cash flows during development phases. _____(Three to five year recommended)deferrals would allow young firms to re-invest internal cash and speed development.

(Arkansas has legislation offering tax credits to businesses to spawn development. See Ark. Code Ann. sec. 15-4-2104.)

Regulatory Relief and Economic Development Assistance in attracting other nanotech companies.

Elimination of state incorporation and annual filing fees could be eliminated or credited for nanotechnology firms working with the Virginia NanoEnterprise business accelerator.

Attracting other companies or potential startups to Virginia will require dedicated assistance by Virginia EDA and VEC to identify and target nano technology startup companies. Further, Virginia will need to market itself to venture capital firms with nanotech investments in order to demonstrate how relocation to Virginia will enhance their returns.

GENERATING PRIVATE FUNDING

- Capital funding by the private sector will still need to be attracted and exceed public funding and grant funding by a wide margin (estimates range from 2 – 4x) in order to be sustainable and successful. Some local entities, such as Carlyle and NEA may look at local nano companies today. For Virginia to be successful,

large East Coast, West Coast, corporate VC and International firms will need to be aware of the technology, business and financial opportunities available in Virginia. Efforts to create enough capital flows could be generated by:

- Recruiting and developing an active stable of domestic and international angel investor community and venture capital network as sources of early stage investment capital.
 - By lowering the 'economic searching costs' of finding viable nano-tech investments, Virginia will differentiate itself by providing this 'service'
 - Tracking the amount of capital raised as a performance metric of the
- Incentives for assist technology transfer from state universities into the marketplace, either to entrepreneurs or to corporate development groups.